ORGANISATION FOR EUROPEAN
ECONOMIC CO-OPERATION

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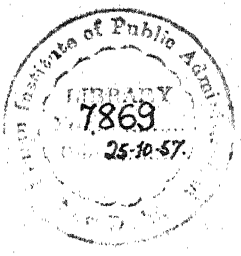
AGRICULTURAL ADVISORY SERVICES IN EUROPEAN COUNTRIES

REPORT OF A WORKING PARTY OF EXPERTS



OEEC
CHATEAU DE LA MUETTE
PARIS
1950

PREFACE
BY THE FOOD AND AGRICULTURE COMMITTEE OF THE O.E.E.C.

This report forms part of a wider study which the Food and Agriculture Committee of the O.E.E.C. is undertaking on the means of increasing agricultural production in Europe.

The O.E.E.C. has for some time appreciated the need to expand agricultural production if full economic recovery is to be attained. Food requirements are increasing with the growth in population, now 11 % above the pre-war level. Food imports from several of the traditional sources of supply are greatly reduced since the war. The whole position is coloured by problems of external payments, which make it imperative to expand production mainly in directions which will reduce the present imbalance of payments. The Food and Agriculture Committee has therefore been asked to study the methods by which the agricultural production of the participating area could best be expanded in ways which would contribute directly to economic stability.

In an Interim Report, issued towards the end of 1949, the Food and Agriculture Committee drew attention to the time lag in putting the results of agricultural research into farm practice, and to the substantial increase in production which could be achieved by the fuller utilisation of newer agricultural techniques. It emphasized that if increased production were achieved in this way the ultimate tendency would be to reduce rather than to increase the cost of production. Such methods of expansion differ fundamentally from an expansion based on protected markets and high cost production. But it was also stressed that agricultural expansion of this kind could only be achieved if certain conditions were fulfilled. Most of these conditions were economic, but one was specifically technical; a considerable strengthening of the farm advisory services in the participating

countries in order to speed up the adoption of newer methods and to raise as quickly as possible the technical level of agriculture.

The conclusions of the Food and Agricultural Committee were generally accepted by the participating countries, and as part of its continuing work, the Committee launched the detailed study of farm advisory services which is the subject of the present report.

In several respects the report breaks new ground. It is the first comparative study of farm advisory services in a group of countries. It is based not on official reports by governments, but on direct observation by experts of the functioning of the advisory organisations in the countries themselves. Finally it is the first study of its kind undertaken jointly by a group of experts drawn from both the European participating countries and from the United States.

Acknowledgment should be made here of the generous help given by E.C.A. in the investigation. The assistance of Mr. M. L. Wilson, Director of the U.S. Federal Extension Services, was made available for the initial planning work. Moreover, Professor Deering, Mr. Maunder and Mr. Miller, the Directors of the Farm Advisory Services of the States of Maine, Nebraska and Minnesota, formed part of the study group throughout and contributed a fresh and stimulating approach to the work. Acknowledgment should also be made to the valuable help given by F.A.O., who loaned Mr. Hummel to join the co-ordinating secretariat of the study group. But the greater part of the team, whose names are set out in Annex I of the report, were Europeans. The study is above all an example of European co-operation in practice.

It should be stressed that the report is not the work of a group of abstract planners. It rather represents the joint views of a group of working farm advisers, leading members of their profession, most of whom have spent the greater part of their lives among farm people. It is a report conceived in no academic spirit, but rather with the intention of putting forward practical and constructive suggestions for strengthening the farm advisory services, at present still too weak in many of the participating countries.

With the publication of this report the Food and Agriculture Committee wishes to record its appreciation of the admirable way in which the study group has carried out its task. The report falls into two parts. There is first a general section which gives the broad conclusions of the group of experts and sets out

certain general principles which they considered necessary for an efficient advisory service. The second part consists of detailed descriptions of the advisory services in different countries, together with suggestions for their further improvement.

The report is issued exactly as written without further editing, not as a report of the Food and Agriculture Committee, but as the report of the expert group. Nevertheless the Committee would endorse generally the broad conclusions reached by the group in the first section of their report. On the studies of individual countries it would clearly not be in a position to judge without repeating the work of the experts themselves. But it is convinced that the recommendations have been put forward with a purely constructive intention, and it believes that they merit the most careful consideration by the countries concerned.

In endorsing the broad conclusions, it is not of course implied that all members of the Committee agree with every detail of the report. In a study of such scope there is obviously room for differences of view and differences of emphasis. The study groups spent necessarily only a short time in each country; they could not see everything; and it could not be expected that their suggestions would always provide the best solutions to the problems they met with; problems which in many cases have been considered for long periods by the Governments concerned. Here it may be interesting to note some of the comments on the report made by the O.E.E.C. Sub-Committee on Agricultural Technology.

For example, while endorsing the view of the experts (§ 30) that agricultural advisers should not be overburdened with executive duties, and especially duties which would imperil their good relations with farmers, the Sub-Committee felt that the value in promoting regular contacts with farmers which results from entrusting advisory officers with some executive functions had perhaps been under-estimated. Again, the group have emphasized (§ 14) the comparative neglect in most European advisory services of "home economics" and work among farm women and youth; here the Sub-Committee noted that in some countries such work fell under other educational organisations. Finally the Sub-Committee emphasized the value to advisory workers of participating from time to time in more fundamental agricultural research.

These comments are quoted not as a criticism of the work of the experts, but as examples of points on which there may be differences of emphasis. They in no way detract from the value

of the report. Indeed they may be of value in stimulating discussion. The Food and Agriculture Committee therefore considers this report as a document of the highest value and believes it to be an important contribution to the strengthening of farm advisory services in the participating countries, on which the revival of their agriculture so largely depends.

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PART I

GENERAL REPORT

I. INTRODUCTION

1. There is general agreement on the importance of the contribution which agriculture must make to the balancing of Western European economy in the immediate post-Marshall Aid years. It was concluded in the Interim Report of the Food and Agriculture Committee "that the technical possibilities of expanding agricultural production in the participating countries are very considerable" and that such an expansion would " contribute materially to a strengthening of the economies of the participating countries". At the same time is was agreed that the possibilities of a policy of agricultural expansion could only be realised under certain conditions, one of the most important of which was a considerable strengthening of the Agricultural Advisory and Educational Services in the participating area. Technical methods which would secure increased and more efficient production are, in many cases, well established. They are not, however, sufficiently known to farmers or applied to farm practice.

2. A conference on Advisory Services in European countries was organised by F.A.O. in August 1949. This meeting marked the beginning of the study of agricultural advisory work on an international basis. The countries taking part provided memoranda on the present organisation of their national Advisory Services; a fruitful discussion was held and, as a result of the exchange of views, certain conclusions were drawn and useful recommandations made.

3. In view, however, of the urgency of developing agricultural Advisory Services in the participating countries to allow agriculture to make its maximum contribution to economic recovery, the Food and Agriculture Committee of the O.E.E.C. considered that even more direct steps were desirable to pool the experiences of the participating countries in Advisory Work. The immediate

task of the participating countries is defined in the Convention under which O.E.E.C. was set up as the elaboration and execution of a joint recovery programme designed to permit them to reach a satisfactory level of economic activity without extraordinary outside aid in the shortest possible time. It was because the Food and Agriculture Committee considered that one of the most important steps towards this end was the general improvement in the efficiency and productivity of agriculture throughout Europe that it initiated the survey of agricultural advisory services, the strengthening of which it considered to be of major importance in attaining this improved efficiency and productivity.

4. With the approval of the Council of the O.E.E.C. a Working Party on Agricultural Advisory Services was therefore set up by the Food and Agriculture Committee in the beginning of January 1950. This Working Party was given the task of examining the systems now in operation in O.E.E.C. countries for keeping farmers in step with modern scientific developments in agriculture and reducing the time lag between the discovery of new information and its application in farm practice. The Working Party was asked to make recommendations for strengthening the advisory work in each country and for future activity in the international field. A second important object was to establish direct contact between the technicians of the various countries, with the intention of giving them, through observation, discussion and field examination, a thorough knowledge of the administrative and field practices which have been found successful in connection with advisory work in other countries.

Methods of Work

5. The Working Party continued its studies over a period of four months under the general direction of the Sub-Committee on Agricultural Technology. Twelve participating countries provided experts on advisory work to form the Working Party, viz:

Belgium;	Italy;
Denmark;	Netherlands;
France;	Norway;
Germany;	Portugal;
Greece;	Sweden;
Ireland;	United Kingdom.

Three American experts on Agriculture Advisory Work were provided by E.C.A. under the Technical Assistance Scheme to

participate in the study during the entire period. In addition, F.A.O. and E.C.A. each provided the assistance of a specialist to co-operate with the O.E.E.C. Secretariat in the co-ordination of the study. The membership of the Working Party is set out in the Annex; the members visiting each country are indicated in the individual country reports.

6. At the first meeting of the Working Party on 19th January, 1950, the scope of the study and the procedure to be adopted was decided, and it was agreed for the actual field work to divide the Working Party into three groups, each of which included an E.C.A. specialist. These three groups proceeded to three different countries and, after two weeks studying conditions in each country, re-assembled in Paris to compare experiences and to adopt a uniform method for writing the country reports. Following this interim meeting of the Working Party, the three visiting groups — the composition of the three groups was altered to ensure the maximum uniformity of working methods — then proceeded in turn to eleven further countries. In most cases a fortnight was devoted to the work in each. After the completion of the field work, a general meeting was held in Paris to revise the draft reports which had been prepared during the course of the visits in order to eliminate differences of treatment. The entire Working Party met together on the 11th and 12th May, 1950, to adopt is final report.

Scope of the Study

7. Three main aspects of advisory work were studied by the Working Party:

(*a*) A review of the economic and social conditions in each country, in their relation to advisory work, and an examination of the development, aims and scope of the present Advisory system;

(*b*) An examination of the organisation of the Advisory system at all levels; the financial support accorded to it; the personnel employed, together with their training; the methods employed in advisory work and in planning advisory programmes; and the relationship of advisory work to research, teaching, the farm population and the general public;

(*c*) An evaluation of the advisory services in the individual countries, together with recommendations for their improvement.

8. Great interest was shown in all countries in the work of the visiting teams, and every effort was made to place the necessary factual data at their disposal and to assist them in the field work. Interpreters were provided, and an informed official assigned to accompany them on their field trips. Conferences were held with officials of the Ministries of Agriculture, with regional and local advisory staffs and with representatives of the farmers' organisations. Visits were also made to farms and farmers' co-operatives, agricultural schools, research stations and universities. The Working Party wishes to record its appreciation of the hospitality and co-operation which it received in all countries visited.

STRUCTURE OF THE REPORT

9. The Report of the Working Party is divided into two main sections; the first, a general section; and the second, the individual country reports. In the general section an outline is given of the development of advisory work, and a number of questions of general interest are discussed. Certain recommendations are made for the improvement of advisory work which are believed to be fairly generally applicable. A detailed account of the advisory systems in individual countries, together with more specific recommendations, will be found in the country section which forms the second part of the report; this is to be regarded as the basic and more important part of the present study.

II. PRESENT STATUS AND SCOPE OF ADVISORY WORK IN EUROPE

10. In several European countries the origin of agricultural advisory work dates back over one hundred years. In its initial phases it was not organised in accordance with the present-day concept but was concerned largely with the efforts of outstanding and progressive individuals. From 1840 onwards, travelling teachers of agriculture were found in many countries. Organised Advisory Services were initiated in most cases after the beginning of the present century, and came into being largely through the intervention of governments or farmers' organisations. Their advent was due to a recognition of the economic need to bring scientific advances in agriculture into farm prac-

tice. This marked the change from the pre-scientific to the scientific age in the field of agriculture and rural welfare.

11. At the present time there are agricultural advisory services in all participating countries, though they differ greatly in organisation, scope, personnel, administration and efficiency. The present organisation in each country has been influenced largely by its historical background, and the social and economic conditions of the people. There are two contrasting systems of organisation; those directed and administered by governments and those directed and administered by farm organisations and associations. Examples of the purely governmental type of organisation are to be found in the Netherlands and the United Kingdom, while the second type of organisation has been most fully developed in Denmark. There are, moreover, intermediate variations between the two types, and in no two countries are the organisations exactly comparable. Detailed information on the organisation, scope, personnel, financing and efficiency of the individual services wil be found in the country reports.

Nature and Scope of Advisory Work

12. The scope of advisory work covers a very wide field, and embraces the technical and economic education of farm people, together with problems of rural welfare. If advisory work is to be efficient, the general education of the rural population must be of a quality which will enable the superstructure of adult and youth agricultural training to be placed on a firm foundation. The provision of primary, secondary, and continuation training is therefore a matter of great importance for advisory work. For that reason, in the reports on the countries visited, a review has been made of the general educational facilities provided to rural people. In some instances the basic education given is of a satisfactory standard: in others there is still much need for improvement.

13. The management of a modern farm requires a wide knowledge in many different fields and, since farming is a business combining production and marketing, some knowledge in both the technical and economic fields is essential. The provision of this knowledge is the concern of an advisory service, the function of which is to provide up-to-date advice in the utilisation of the total resources of the farm. Such advice converted into farm practice by a growing number of farmers has led in many countries, to a very considerable increase in total output of

agricultural goods and an increase in national income, benefiting both the rural and urban populations.

14. While the first objective of advisory work is the improvement of the technical efficiency of farmers, it has also a social aspect. Besides dealing with the farmers' problems in the field, in the barn, and in the market place, it should include also the activities of the farmers' wives and children. The education of farm youth and farm women, though developed to a considerable extent in some countries, has been neglected in Europe. There has been a too narrow appreciation of the concept of advisory work and a lack of adequate financial provision.

III. GENERAL CONCLUSIONS AND RECOMMENDATIONS

A. Qualifications and Conditions of Service of Advisers

TRAINING OF ADVISORY PERSONNEL

15. Since the success of an advisory service depends on the quality of its personnel, the training of advisory workers is a matter of great importance. There are three aspects to this training: pre-service training, induction training, and in-service training. The pre-service training accorded to the advisory personnel must be of a high standard with regard to general education, technical education, and practical farm experience.

16. Generally speaking, the pre-service technical training accorded in the universities and higher agricultural colleges is of a high standard. In some countries, however, training in practical agriculture and also in farm economics and agricultural machinery has been neglected, particularly in relation to their application in advisory work. *It is recommended that higher educational institutions should periodically re-examine the courses they provide in agriculture and horticulture with a view to their adaptation to the changing needs of modern agriculture. It is recommended in particular that full weight should be given to training in agricultural practice.*

17. At the present time there is little organised training of advisory personnel in most countries at the time when they enter into the service. Adequate induction training is of the utmost importance if the advisory personnel are to carry out their functions and responsibilities in the most effective manner. *It is*

recommended that in all countries, when new advisers are taken into the service *they be provided with an induction training, and that this training include instruction in general advisory methods, such as advisory aids, programme building, farmer approach, public speaking, and training in organisation methods. Entrants should rank as paid members of the advisory service during this period of induction training.*

18. The in-service training of advisers is of particular importance as their efficiency depends to a great extent on keeping abreast of modern technical developments and instructional methods. Frequent conferences, refresher courses and study tours are effective for providing adequate in-service training. International conferences and courses are also desirable in order to provide contact between the advisers of the different countries and to keep the various national advisory services in touch with developments outside their own borders. *It is recommended that more adequate provision be made for a continuing education of advisers through well organised programmes of in-service training along the lines indicated.*

STATUS OF ADVISERS IN RURAL COMMUNITIES

19. The Working Party has found that, broadly speaking, the basic general and technical education of advisers in Western Europe is of a high standard, although recommendations are made above for strengthening some aspects of their training. In general, also, advisers have the confidence of farmers and have been wisely chosen for their capacity to co-operate with rural people. Lack of proper office accommodation, adequate equipment and transport facilities, however, have had a very detrimental effect on the work in large areas and in many countries. Progress has also been retarded by inadequate salaries, subsistence allowances and travelling expenses. In some countries advisers have to devote part of their time to work with other agencies in order to augment their incomes and keep out of debt. Yet it is clear that the adviser must have a personal and social standing in the community which will command respect, or he will not have the confidence of farmers or be sought out for his advice. Neither the down-at-heel doctor nor the down-at-heel adviser is wanted in the rural community. *The Working Party recommends that serious attention be given to ensuring that the salaries and expenses, and office accommodation and equipment of advisers are such that they can perform their duties efficiently*

and maintain their standing in the communities which they serve.

Number of Farms under Direction of Each Adviser

20. The Working Party noted in several of the countries a striking disparity between the numbers of the advisory staff and the number of farms which they had to cover. From an examination of the country reports it will be seen that the number of farms per adviser ranges from a few hundred to several thousand. It is evident that in several of the countries only a fraction of the total number of farms can be visited with the staff at present employed. This position can only be remedied when more adequate finances are made available. In some countries it was noted that owing to the limited number of advisers there was a tendency to concentrate on the larger farms and the more progressive farmers. While this is understandable, it must be emphasised that it is among the smaller farms and the less progressive farmers that there is most need of technical help and advice.

B. Working Methods and Relations with Allied Services

Co-operation with Research and Agricultural Educational Services

21. In most European countries a large amount of agricultural research work is in progress, but it is generally recognised that the results of this research find their way too slowly into farm practice. This was very evident to the members of the Working Party during their country visits. Close relations between research and advisory workers are necessary to allow a more efficient flow of research results to farmers and also to ensure that research workers are familiar with farmers' problems, though it is not suggested that they should neglect basic research. The connection between the agricultural education facilities provided to farm youth and the advisory service is of no less importance, since advisory work and agricultural education have the same aim. No single procedure can be suggested to overcome the wide range of circumstances existing in different countries, but *the Working Party strongly recommends that steps be taken in all countries to establish closer relations between workers in the fields of agricultural research, agricultural education and agricultural advisory work.* Such relations should be based on an

organised system of regular connections and periodic discussions which in turn should lead to greater efficiency and a better utilisation of the resources devoted to each field, for research will only be useful to the extent that its results are applied in farm practice.

22. The functional organisation of advisory work in European countries varies between two extremes. In some countries local advisers are highly specialised and give advice only in the subjects in which they are most competent, such as dairy husbandry, plant husbandry or horticulture. In other countries the local advisers are general practitioners and they give advice on all problems relating to the farm. These general practitioners in some cases have available to them, at the regional or national level, highly trained specialists with laboratory facilities to whom they may refer the more difficult and unusual problems which arise. It is difficult to make a decision as to which of these organisations is the more efficient since a great deal depends upon the conditions prevailing in individual countries and in particular upon the standard of education of the farm people. *Yet, since from the point of view of economics and good farming the farm must be viewed as a whole and not in individual segments, there are, in the opinion of the Working Party, strong arguments in favour of a system which comprises a sufficient number of general advisers well trained in general agriculture and farm management. Moreover, it is believed that such general advisers should be stationed in rural areas in close contact with their farmer "clients".* It is appreciated that such general agricultural advisers would not be adequate in areas where horticulture is highly specialised or technically advanced types of agriculture practised. Here advisers in special branches would be preferred. It is desirable, however, in all cases that the work be supervised with an eye to the general efficiency of the service as a whole and to the general development of all phases of agriculture.

23. *The Working Party recommends that a staff of highly trained specialists in each particular important field of subject matter be retained at all appropriate levels.* These specialists would provide a link between the research stations and the field advisory officers since they would be in constant touch both with the farmers' problems and with research and experimental work. They would provide assistance to the field officer in the handling of special problems and through contact and short refresher courses would keep him in touch with technical de-

velopments. The specialist staff should form an integral part of the advisory service. They should have access to adequate laboratory facilities, and should be responsible for the preparation of popular leaflets and bulletins for farm use, in close consultation with the field worker. On no account should specialists work independently of the field officers and their contacts with farmers should be with and through the local adviser, or his prestige among the farmers will be undermined.

ADVISORY METHODS

24. The most common advisory methods used in Western Europe are individual methods such as farm visits, office and other discussions, and telephone calls; group methods such as lectures, classes and demonstrations; and mass methods such as information circulars, popular bulletins and articles, and radio talks. *It is the opinion of the Working Party that great emphasis must be placed in all countries on methods by which available staff can reach more people and stimulate wider farmer interest.*

25. In some countries "information services" have been set up and have been found most successful in reaching large numbers of people. Such services prepare information circulars and bulletins written in popular language for distribution by the advisory officers; prepare timely articles for publication in the local and the agricultural press; arrange and prepare radio broadcasts including short timely advice (on sowing, marketing, etc.) preferably following the weather forecasts; prepare advisory aids; and train advisers in writing articles for local publicity, in the preparation of radio talks and in the use of advisory aids. Central information services of this type have been very effective in spreading information, in assisting advisers in local work, in stimulating public interest, and in giving general support to advisory work.

26. Another method which has given outstanding results in some countries is a system of "pilot farms". These are average farms in different agricultural regions which are managed by the farmer in conjunction with the local advisory officers. The adviser assists the farmer to draw up plans for the management of the farm as a whole, ensures that all records are kept and collaborates in the work. The farms selected are those of farmers who are capable and willing to co-operate without

special remuneration other than the increased profits resulting from good management. These farms have been found a most successful and effective method for convincing neighbouring farmers of the profit to be secured from the application of modern management practices in farm business.

27. An additional method for the demonstration of work relating to farm management is the "advisory circle" in which a group of farmers join together under the direction of the adviser for the purpose of comparing output and efficiency by the keeping of complete farm records. New practices are illustrated to a varying extent in all countries by means of "demonstrations". Demonstration plots have been found most useful in improving fertiliser practices, in introducing new varieties of crops, in the control of weeds, and in pest and disease control, etc. Demonstrations in other fields such as conservation of fodder crops, efficient feeding of milch-cows and other livestock have proved to be of great value, but they are neglected in almost all countries in Western Europe. *It is the opinion of the Working Party that if these methods were more generally applied great and rapid improvement could be made.*

28. Other methods used very successfully in some countries include farm-walks, tours, discussion groups, exhibits at shows and local gatherings of farm people, farm machinery exhibitions and agricultural films and film strips. *The Working Party recommends that the methods used in each country should be reconsidered in order to make the maximum use of the advisory staff. Where the staff is limited it may be well to emphasise group methods such as pilot farms, demonstrations of new practices in animal as well as crop husbandry, farm-walks and exhibits. Where the staff is larger more time may be devoted to individual methods such as farm visits and other individual discussions. Mass methods will always play an important rôle and are especially well suited for advisory work in certain subjects such as control of plant disease and insect pests.*

Appraisal of Advisory Methods

29. At the present time in most European countries little attempt is made to check on the efficiency or to evaluate the results obtained from advisory work. Such an evaluation is of great assistance in assessing the effectiveness of the advisory methods in accomplishing the purpose for which they are

designed. There are many aspects of advisory work which are difficult, if not impossible, to measure by any concrete standard. These include improvements in farm living, saving of effort and the satisfaction derived from increased knowledge, self-confidence and independence among rural people. In spite of these difficulties it is possible to make an overall appraisal of the economic results obtained from specific advisory activities and methods. Since the devotion of public funds to any activity presupposes efficient administration and service to the general community, *the Working Party recommends that each country makes a periodic appraisal of the efficiency of its advisory service with the object of improving the methods used and adapting its organisation to serve the needs of its farming community.*

Regulatory Control and Administrative Work

30. Regulatory control or administrative work has been assigned to the local advisers in most European countries. The extent of this varies considerably from country to country. In some cases, this work includes the control and rationing of feeding stuffs and fertilisers, the licensing of stallions, bulls and boars. and the collection of agricultural statistics. There are even a few instances where the adviser is called upon to manage commercial enterprises, to collect the membership fees for local associations and even to act as a tax gatherer. While these duties promote contacts, they may not always be conducive to a friendly working relationship between the adviser and the farmer. Even from an economic point of view they can be executed by less highly qualified and paid personnel. In many cases, they very often occupy too large a proportion of the advisers's working hours, leaving him little time to devote to the advisory work for which he is responsible. *The Working Party recommends that the authorities in each country should re-examine the duties of their advisory workers with the object of removing any regulatory, control and administrative tasks which may hinder the development of confidence and close working relationships between advisers and farmers.*

Routine Work

31. Routine work relating to the adviser's special field often assumes an all too time-consuming character. Examples of such work are the taking of soil samples, and the sampling of feeding stuffs for analysis. This is essential and important work

and of great value as a basis for efficient farm management. It should not, however, take up an undue amount of the time of the adviser, and these duties could be efficiently and more economically conducted by advisory assistants with a lower training. *It is therefore recommended that consideration be given to the employment of a staff of technicians under the control of the advisory officer for the purpose of carrying out routine work such as soil sampling, and taking samples for analysis where such work occupies an undue amount of the time of the field advisers.*

C. General Administration of Advisory Work

Direction of Advisory Work at the National Level

32. In some countries the advisory service has been given a position of secondary importance in the Agricultural Ministry. It is sometimes assigned to a section which is also concerned with other activities, which may have no relation to advisory work. There are also countries where advisory work has been divided among different Sections and even different Departments, and little provision made for co-ordination. This form of organisation may lead to conflicting instructions, wasted effort and less effective service for rural people. *Full co-ordination of the directives to the regional advisory services is of the greatest importance, and it is the view of the Working Party that advisory work will usually make most progress where it is entrusted to a specialised section in one Department, where it receives the full and undivided attention of the directing officials, and where all directives to regional organisations come from this Section.*

Farmer Participation in Advisory Work

33. There is great variation in the extent to which farmers and their organisations participate in planning and directing advisory work in the participating countries. In Denmark advisory work is sponsored almost entirely by farmer associations; in England and Wales, on the other hand, it is for the main part governmental. Other countries vary between these extremes. In the view of the Working Party, it is very important that farm people should feel that the service is there to help them, and that the success of the work is largely dependent on their own collaboration in making full use of it. Little can be

achieved without general farmer co-operation, and the individual adviser cannot be successful in the local area without the farmers' active support. Participation of individual farmers and groups of farmers in the development of advisory programmes at the local, provincial and national levels has been found one of the most effective means of securing this co-operation and support. The judgment of farm leaders can also be of great value in determining the practicability of proposed projects and in gaining their acceptance by farm people generally. Furthermore, farmer groups which are given and accept responsibility for the carrying out of advisory projects under the supervision of well trained advisers can greatly increase the extent and effectiveness of advisory work in the community. Advisory officers can also render a valuable service to farm organisations and groups by furnishing them technical and economic information and advice. *The Working Party recommends that:*

(a) *Farmers should be associated to the maximum extent in planning advisory programmes, and share the responsibility of carrying them out with the agricultural adviser;*

(b) *Advisory committees of farmers should be drawn into the formulation of advisory programmes and policies.*

FINANCING ADVISORY WORK

34. The Working Party was also deeply concerned by the inadequate financial support provided for advisory work in most European countries. Largely as a result, little progress in agriculture has been made in some countries and farming remains in a very primitive stage. The financial provision for advisory work varies greatly from country to country and there are correspondingly wide differences in the amount and quality of the work done. Advisory work is an important national service, and thus the provision of adequate finance seems primarily to be the responsibility of national governments. The provision from national funds to advisory work in the different countries visited appeared to be greatly influenced by the proportion of the national budget devoted to agriculture. In many countries this proportion seems very low in comparison with the importance of agricultural production in the overall national economy. *The Working Party would emphasise that no real progress in agricultural efficiency can be expected unless adequate finance is allocated to agriculture, and in particular to advisory work.*

35. It is considered that the responsibility for the major contribution towards the financing of the Advisory Service should be borne by national governments in order to ensure that the service provided is adequate to the needs of all farmers, and that the coverage of the service is adequate in all districts. At the same time, it is also recognised that local contributions have played an important part in the development of advisory work in many countries, allowing for the stimulation of local interest and initiative. Such local contributions, however, are best viewed as supplementary to the national provision, since where the advisory work is largely dependent on local funds, there is a danger of inequality in the service provided from locality to locality. *The Working Party recommends that every effort be made to stimulate public bodies in local areas and also groups of local farmers and farmers' organisations, to make voluntary contributions towards the financing of the advisory work in order to allow for local interest and initiative.*

ADVISORY WORK AND THE GENERAL PUBLIC

36. There is still too little recognition on the part of the general public of the importance of agriculture in the national economies of most European countries. This lack of recognition in turn has led to a lack of appreciation of the importance of advisory work. The part of government agricultural organisations and other agencies in the necessary work of public education will vary from country to country. But the support necessary to develop the advisory service in any country and to allow it to achieve its ultimate potentialities will not be forthcoming until there is a more general understanding of the value of agriculture and of its importance to the national welfare. In the opinion of the Working Party the awakening of national interest in these matters is overdue and it is believed that the appropriate agencies in each country should initiate programmes for public education in which a factual and objective evaluation should be given of the contribution of agriculture to the national economy, welfare, and standard of living.

D. Subjects Requiring Greater Attention

AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

37. The Working Party, in the course of its study, observed that advisory work in agricultural economics and farm manage-

ment has not received much attention in most European countries. Work on these subjects is of particular importance since the ultimate object of the farmer is to make enough profit to allow him and his family an adequate living standard. It is in his interest if production costs can be lowered and output increased through proper farm planning and efficient management. Considerable work has been initiated in book-keeping and farm recording for the purpose of estimating production prices for governmental use, but as a rule records have not been widely prepared in a form in which they can be utilised by farmers for the better organisation of their business. An instance of a progressive approach to this subject is provided by the "advisory circle" or farmer group method which has been utilised as a means of increasing the net farm income of members. The results thus obtained can be used by farm advisers in farm management educational work with other farmers in the district. *It is recommended that greater provision should be made for the utilisation of practical farm records in the national advisory services and for adequate advice and leadership in work connected with agricultural economics and farm management.*

Animal Nutrition, Farm Mechanisation, Farm Building, Drainage and Irrigation

38. Some technical problems have also received little attention to date from advisory services in most countries. Special mention may be made of animal nutrition, farm mechanisation, farm building, drainage and irrigation work. In nearly all countries the work on these subjects should be initiated or strengthened. In some cases much additional research work seems a pre-requisite.

Animal Diseases

39. The control of animal diseases, and particularly those related to human health, is a serious problem in most countries included in the survey. While regulatory and control measures are in effect in varying degrees in all countries, the ultimate control of such diseases as bovine tuberculosis and Bangs disease will depend in part upon thoroughgoing education for farmers on the hygienic methods necessary in livestock management. In some countries veterinary officers engage in such advisory work to a varying degree, but as yet the work has been very limited, and with few exceptions is not carried out on any organised plan.

In some countries the veterinary service is not controlled by the Ministry of Agriculture and this may lead to considerable difficulties in the co-ordination of work on animal diseases. It is believed that the addition of veterinary specialists to advisory staffs will be of great value to farmers and of much assistance to both regulatory officials and practising veterinarians. *It is therefore recommended that in all countries in which insufficient attention is devoted to this problem veterinary specialists be attached to the advisory staff to devote their full time to educational work on the hygienic methods of animal disease control.* Examples of the educational methods which might be used include refresher courses for general advisers, work with farmers in groups and through their associations, and the use of films and other advisory aids. Close working relations should be maintained with the specialists and advisers engaged in livestock advisory work, as well as the regulatory officials and practising veterinarians.

E. International Co-operation

40. One of the most striking aspects of the present study, in the view of the Working Party, was the vast amount of knowledge gained by its members with regard to the efficiency and results obtained in different areas by different methods and practices. The broad education and orientation obtained by the Working Party members will be of the utmost value in their future advisory activities in their home countries. This view is shared by the United States members of the Working Party and is confirmed by the wide interest in this present study which has been shown in the United States of America. Aspects of advisory work in which outstanding progress has been made in individual countries include the training of advisers, use of advisory aids, the application of farm economics to general farm management, advisory methods for grassland improvement, the use of demonstration farms in advisory work, the functioning of an advisory service in the consolidation of farm holdings, the feeding and management of farm animals, the construction of farm buildings and the use of farm machinery. It is of importance that the fullest possible use be made of all means for the improvement of technical practices in agriculture through the interchange of experience between advisers in different countries. *The Working Party therefore recommends that provision be made on an inter-*

national basis for the following further projects in the field of advisory work;

(a) *The arranging of periodic meetings for the specialists in specific advisory subjects, on the lines of the recent O.E.E.C. Conference on Advisory Methods for Grassland Improvement;*

(b) *The arranging, from time to time, of refresher courses on an international basis for practising advisory workers at centres eminent in the special subject of the course;*

(c) *The establishment of an exchange system between countries for advisory workers; and*

(d) *The extension of facilities for training young advisory workers in the universities or in the advisory services of other countries.*

F. Conclusion

41. It will be observed from a study of the recommendations made in the country reports as well as the general recommendations made in this section that the Working Party does not consider it desirable, nor has it made any recommendation that any uniform pattern should be adopted for the conduct of advisory work at regional or local levels. The existing institutions in the individual countries have grown out of the educational, social, traditional and cultural ideals of the people The recommendations made can in all cases be carried out through the adaptation of these local institutions and it is of course appreciated that any innovations must proceed step by step as staff is available and farmer interest developed. The Working Party, in making its recommendations, has given serious thought to the many problems involved and it is hoped that the suggestions put forward will result in more effective advisory services in Europe. It is believed that improved advisory services are an essential requisite for the agricultural expansion and for the greater efficiency in agricultural production which is the policy of the O.E.E.C., and also for an increase in the standard of living of rural people: both of these would represent an important contribution to economic recovery in the participating countries.

PART II

COUNTRY REPORTS

AUSTRIA

Duration of visit: 12 th April to 25th April, 1950.

Members of Visiting Team:
Mr. W. S. GIBSON (United Kingdom), *Chairman;*
Mr. G. R. YTTERBORN (Sweden), *Secretary*;
Mr. A. L. DEERING (United States), *E. C. A.*

1. The team visiting Austria consulted with officials of the Austrian Ministry of Agriculture, officials of the administration of Styria, officers of the Chambers of Agriculture and of the Advisory Services in the latter province, representatives of the Advisory Services in Upper and Lower Austria and representatives of farmers' organisations. A Study was made of the Advisory Service and of the agricultural conditions in the province of Styria. Visits were also paid to the College of Agriculture and Forestry in Vienna, the Federal Institute for Plant Protection, and to some Agricultural Schools, where information was obtained with regard to education and research.

I. Introduction

2. Austria is a rather mountainous country and it includes most of the territory of the Eastern Alps. These mountains are of considerable height and the peak of Hohe Taurn reaches approximately 3,500 m. From west to east there is a gradual decline in elevation towards the valley of the Danube. The total area of the country is approximately 8.1 million hectares, of which 1.9 million hectares, 23 %, is arable land, and 2.3 million hectares, or 28 %, is grassland and permanent pasture. There are 3.0 million hectares, or 37 % under forest, which forests may grow on the mountain slopes up to a height of 1,500 m. Since a great part of the country is rather mountainous, farming is

often carried on at a height of 1,200 m. These Alpine regions are especially well suited for grassland and permanent pasture. On the whole, the climate is favourable to agriculture, the average rainfall varying from 600 mm in Vienna to 1500 mm in some Alpine regions. The average temperature ranges from —3°C in January to — 19°C in July. The country lies between 46° and 49° North latitude.

3. The total number of agricultural holdings in Austria is 433,360. Of this number 67.7 % are under 10 hectares in size (agricultural and forestry land), 29.1 % are between 10 and 50 hectares, and only 3.2 % are 50 hectares or more. The holdings under 10 hectares comprise 12.9 % of the total agricultural and forestry area, while those of 10 hectares or more account for 87.2 %. In some areas the holdings are split up in several parcels scattered over a rather wide area. Work is under way on the consolidation of scattered holdings but progress is rather slow.

4. The soil, although generally of good quality, varies considerably. In many areas the land is rather acid but adequate supplies of lime are available in the country. There is little soil erosion, largely due to the intense afforestation of the hillsides. Mixed farming prevails throughout the country. In the east bread grain, sugar beet and vines are the most important crops, while a great part of the west is devoted to grassland farming. In 1949, 46.3 % of the arable land was under grain crops, and 16.8 % under roots and potatoes. The remaining 36.9 % was in general devoted to grassland and fodder crops. In 1949 the livestock population included 282,000 horses, 2,000 mules and asses, 2,201,000 cattle (inclusive of 1,071,000 milch cows), 1,923,000 pigs, 375,000 sheep, 317,000 goats, and 5,156,000 poultry. There was a substantial decline in the livestock population during the war years, particularly in pigs and poultry. The number of horses and sheep are now greater than in pre-war days, and cattle and pigs are rapidly increasing to pre-war level. Poultry numbers still remain very low. The yield per hectare in the quinquennial period 1934-1938 and in the year 1949 is shown in the following table:

Quintal (100 kgs) per hectare

	Wheat	Rye	Barley	Oats	Maize	Potatoes	Sugar Beet	Fodder
1934/39	16.7	14.7	17.6	15.2	25.6	137.6	253.5	284.0
1949	16.9	15.2	16.8	13.9	21.4	113.1	200.0	189.6

In pre-war years the average annual milk yield per cow was 1,955 kilogrammes. During the war there was a considerable decline in milk yield, largely due to the dearth of imported feeding stuffs. Since then there has been a gradual improvement, yet the present annual milk yield per cow is 20 % below pre-war standard.

5. The population of Austria in 1949 was 6,952,744, of which approximately 27 % derived their livelihood from agriculture and forestry; 31 % from manufactures and handicrafts; and 15 % from commerce and transport. The population engaged in agriculture and forestry is declining.

6. Primary education is compulsory for children between the ages of 6 and 14 years. At present there is a continuation school system for children between 16 and 18 years. In some of the provinces the continuation schools are compulsory. In 1949 there were 1,647 such school classes with 29,191 pupils, including boys and girls. Boys attend the schools two and a half days each week while the girls attend one full day each week for two winter seasons. The education provided in these schools is partly of a general nature and partly vocational.

7. Farm children receive little education beyond that provided in the public elementary schools. Only approximately 10 % of the future farmers receive an additional training in the lower agricultural technical schools. The educational training provided for farm girls is of a similar character. In all there are 40 agricultural technical schools for boys in Austria. Most of these schools give courses over two winters, while a few of them give one year courses and two schools provide a course of two years. For girls there are 23 schools in domestic science, the courses in which vary from five months to one year. Most of these schools are provided by the provincial governments although a few are maintained by the Agricultural Chambers. Fifty per cent of the teachers salaries is provided by the Federal Ministry of Agricul-

ture. All schools are boarding schools and in 1949, 220 full time teachers and 320 part time teachers were employed. There were 3,108 students of whom 2,246 were boys and 862 girls. There are seven special agricultural schools providing short term courses in agriculture, milking, and weaving. The Ministry of Agriculture maintains 3 forestry technical schools for training foresters, and 5 higher agricultural schools offering courses of 4 to 5 years duration. A school in Dairying and in Cheesemaking provides courses varying in length from 4 to 16 months.

8. In 1949 organisations for the education of farm youth were formed throughout Austria. In Styria, this organisation is called The League of Styrian Youth. At present membership is confined to boys and young farmers between the ages of 14 and 35 years. It is planned to organise similar educational work for girls. The members of the League of Youth participate in the work of the continuation-vocational schools through courses arranged by the Chambers of Agriculture. Group-projects such as demonstration plots relating to subjects as grass varieties, reafforestation plant protection, and individual projects such as the production of hybrid maize, potatoes, grass, fruit, pigs and calves are initiated among members. The youth movement has grown very rapidly and at present 500 groups are organised with 12,000 members.

9. The co-operative system is well developed in Austria. Co-operatives are organised to deal with deposits and credit, purchasing and grain marketing, milk and dairy products, livestock, fruit and vegetables. Local co-operatives are joined at the provincial level. The Provincial Unions are in turn united in National organisations. The National organisations join together to form the Austrian Federation of Farmers' Co-operatives. There are 273,000 members in co-operatives dealing with short-term credit and deposits. Long-term credit is furnished by special mortgage bank institutes. The interest rate is very high, 5.5 to 6 % for short-term and 6.5 to 7 % for long-term loans. Ninety-five per cent of the milk is delivered to farmers' Dairy Co-operatives. In addition to the marketing co-operatives there are machinery co-operatives and a number of farmers' associations for plant breeding, livestock breeding, and milk recording. The Farm Machinery Co-operatives are organised according to the Swedish pattern. There are 26 of them in Styria.

AIMS AND SCOPE OF PRESENT ADVISORY SERVICE

10. The primary objective of Advisory Work is to increase the food production, and to improve the income and standard of living of the farmers. The scope of the service includes informal education of farmers, farm labourers, farm women and youth; advice to farmers and farm women; demonstrations; and much administrative work in connection with the Agricultural Chambers and Farmers' Associations. Advisers generally act as secretaries for farmers' associations.

II. Present Advisory Service

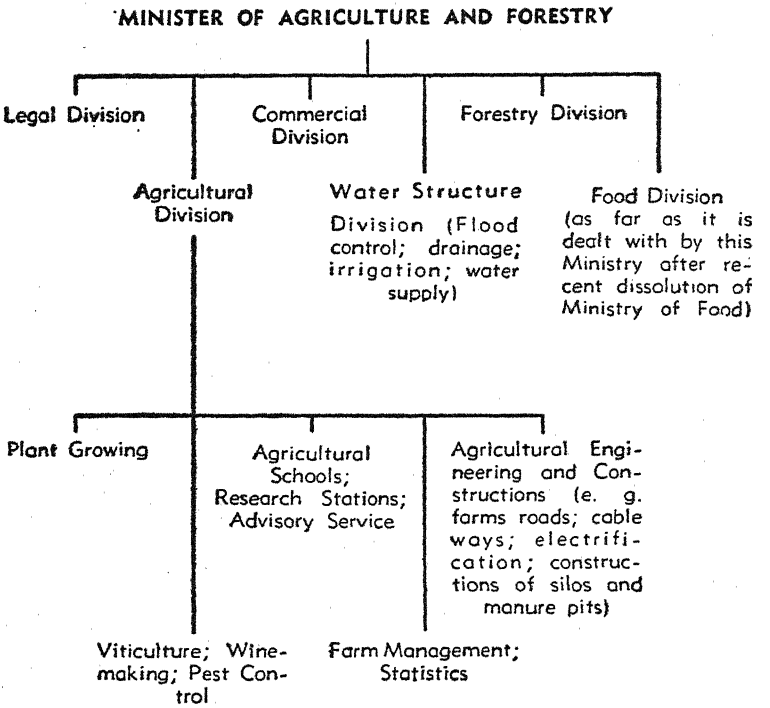
11. Advisory work was first initiated in Austria about 1925 under the direction of Chambers of Agriculture. Emphasis, in the early days, was directed to the problems of Alpine pastures, livestock husbandry and plant breeding. In time other specialists were added and progress continued up to 1938 when all existing organisations were dissolved and advisory work was taken over by the "Reichsnährstand" under the Nazi regime. After the second World War the Federal Ministry of Agriculture and Forestry and the re-constituted Chambers of Agriculture in the Provinces organised the present service of advisers which dates only from 1945.

12. The organisation of agricultural education and advisory work on the Federal level under the Ministry of Agriculture and Forestry is illustrated by the following diagram.

At present the Commercial Division of the Ministry is responsible for dairying and livestock husbandry. (See Table, next page.)

13. Austria is a Federal State consisting of nine Provinces ("Lands") each province of which has its own government for internal affairs. Each Province is thus responsible, *inter alia*, for the agriculture within its borders and has the power to levy taxes. In each Province there is a "Chamber of Agriculture" the majority of the members of which are elected by the land owners, the remainder being representatives appointed by Agricultural Co-operative Societies. Thus, in the largest Province, Lower Austria, where an election was recently held, the Chamber of Agriculture comprises 36 members, 32 of whom were elected from the 32 constituent Districts, and 4 appointed by the Co-operatives.

Each District which has a District Chamber of Agriculture is in turn sub-divided into "Communes"—often 60 to 100 in number. Each Commune elects one representative to maintain liaison with the District Chamber for a period of five years.



14. Each Provincial Government appoints a "Provincial Counsellor" who is responsible for agriculture in the province. The provincial counsellor supervises the work of the Chamber of Agriculture and ensures that the Federal and Provincial Laws are complied with. Each Chamber of Agriculture elects its own President, two Vice-Presidents and a series of technical committees to deal with specific questions. Staff are appointed by the Chamber to carry out the work under the supervision of a Director. The activities of the Chamber are supported through grants from the Federal and Provincial governments and the proceeds of a "land tax" levied by the Chamber itself on all holdings over one hectare in area. This land tax amounted to 10 schillings per hectare in Styria in 1949. The Presidents and

Directors of the provincial Chambers meet each month in Vienna at the "Conference of Presidents" to which are invited the Minister and the Section Chiefs of the Ministry. The Federal Minister for Agriculture and Forestry has the power to convoke the "Conference of Presidents" but he can only give instructions to the Chambers by means of regulations or decrees, or by granting or withholding federal funds.

15. The Provincial Government maintains a system of Lower Agricultural Schools, the teachers of which also act as advisers. Other advisers are employed by the Chamber of Agriculture to correlate the advisery work within the province. No precise information was available as to the numbers and qualifications of those employed in advisory work in Austria as a whole. The following however are the numbers of advisers employed in the province of Styria:

General Agricultural Advisers	31
Rural Domestic Science Advisers	23
Forestry Advisers	17
Crop Husbandry Advisers	15
Livestock Husbandry Advisers	7
Horticultural Advisers	6
Viticultural Advisers	4
Total	103

Of this number 36, (including the general agricultural advisers) are paid from E.R.P. funds. The staff of 103 has to serve 75,000 farmers in the Province.

Financing

16. The total budget of the Federal Government of Austria for 1950 is 9,000 million schillings. Of this total some 313 million schillings or approximately 3.5 per cent is allocated to the Ministry of Agricuture and Forestry. This allocation includes the grants-in-aid to certain schools and research institutes as well as the funds to be distributed between the Provinces for agricultural improvement, At the provincial level, again taking Styria as an example, the Chamber of Agriculture

will have 17 1/2 million schillings at its disposal for this year. The sum is made up as follows:

	Million schillings
Grants from Ministry of Agriculture and Forestry	6.5
Grants from Provincial Government	5
Land tax payable to Chamber	6

Preparatory Training and Qualifications of Advisers

17. The College of Agriculture in Vienna is under the direction of the Federal Ministry of Education and provides courses leading to the Diploma of Engineer. Students are trained in four separate courses, namely Agriculture, Forestry, Fermentation Techniques (e.g. for wines) and Agricultural Engineering. Provision is also made for post-graduate degrees and diplomas. On entering, students must pass the equivalent of a University Entrance Examination and have worked as a farm labourer for two months. The Diploma course is of four years duration and includes 8 months practical farm work. At present, a total of 1,235 students attend the College, of whom 132 are girls. Some 90 per cent of those completing the College course obtain posts in the Service of the Government or Chamber of Agriculture. The Veterinary College is also directed by the Ministry of Education. All staff appointments and the curriculum must however, as in the case of the Agricultural College, be approved by the Minister of Agriculture and Forestry. Rural Domestic Science Advisers complete a 3 year course in domestic science, poultry-keeping, pig-keeping, dairying and horticulture at a Higher Agricultural School for girls. They then take a further course of one year at a special training College near Vienna operated by the Ministry of Agriculture and Forestry. Horticultural advisers are required to complete a 3 year course provided at the School for Viticulture and Horticulture at Klosterneuburg near Vienna, operated by the Ministry of Agriculture and Forestry. Students must be at least 16 years of age at entry, have passed through an Agricultural or other approved School and have had at least two years of practical experience in Agriculture, Horticulture or Viticulture.

In-service Training

18. Although the present Advisory Service was founded only in 1945, some quite useful in-service training is given to the advisers. This includes conferences at certain research institutes.

Advisory Methods

19. At present much emphasis is placed on group methods and advisers act as teachers for courses held each winter. During 1949, 3,294 such courses were held in Austria and these were attended by 67,477 pupils, including 14,180 females. The attendance at these courses is voluntary except in the case of farmers receiving grants or subsidies for work such as the construction of silos and manure pits. The time of the adviser is completely occupied in teaching duties from October to March or April. During the summer visits are paid by the advisers to as many of the farms of the winter pupils as possible. Wide use is made of advisory aids including films, slides, models, charts, and drawings. Demonstration plots are also popular, and travelling exhibitions are arranged. Mass media are widely utilised for farmer contact. In Styria:

(*a*) 70,000 copies of a farming paper are published fortnightly and sent free to farmers by the Chamber of Agriculture;

(*b*) 1,000 copies of a paper called "Information Service" are published fortnightly and distributed, amongst others, to newspapers and advisers;

(*c*) Farming talks are broadcast during 4 periods of 15 minutes each week as well as during a 5 minute agricultural news and price service every morning;

(*d*) During last winter a touring van fitted with projection equipment gave 350 showings of agricultural films at which 12,000 people attended;

(*e*) Approximately 12,000 books on technical agricultural subjects were sold by the Chamber to farmers last winter at half their regular prices.

Programme and Programme Planning

20. The programmes for advisory work in each province are arranged by the Chambers of Agriculture.

Research Relationship

21. Some 20 Federal Research Stations deal with technical problems relating to agriculture, forestry and inland fishing. Research is also carried out by the staffs of some other institutions as at the College of Agriculture. The Advisory Staff appear

to conduct no precise field or other experiments. Field demonstration work is however carried out as well as some work on the multiplication of seed stocks. Contact between the research stations is variable and is not arranged on any organised basis.

III. Evaluation and Suggestions for Further Development

22. (1) Immediately before the last war Austrian farmers provided 75 per cent of the country's food requirements. During the war, phosphatic fertilisers were unobtainable, considerable war damage was sustained by farm buildings, and in many cases livestock were killed or driven off and farm equipment appropriated. Recovery in consequence is more difficult, and the present programme aims at reaching the pre-war standard of production by 1952-53. At present Austrian agriculture provides 65 per cent of the country's need for food. Further development would be accelarated by the establishment of a fully developed and utilised soil testing service; by the making available of adequate farm machinery for the larger farmers and through co-operatives to the smaller producers; and by the development of grassland husbandry. At present in the areas visited by the team land is allowed to "tumble down" to rotation grass without seeding and there is tremendous scope for developing grassland husbandry in the country. It is realised that in many cases the difficulty is to make available adequate money to carry out the reconstruction and to purchase supplies of machinery and other requisites.

(2) The time in now opportune for taking stock of the present status of the Austrian Advisory Service. The growth of the service has been rapid in recent years. Such a review is made difficult however because the advisory service in each Province arranges its own programme in collaboration with the Chamber of Agriculture and Provincial Government. In addition, both the Ministry of Education and the Ministry of Agriculture and Forestry are responsible for other training establishments. The development of advisory work in different provinces has proceeded along different lines. In Styria, for instance, the tendency has been to develop an Advisory Service based on specialists, whilst in Lower Austria in contrast there are no specialists. The Team recommends that Advisers in general agriculture be used as the foundation of the service and a smaller

number of better trained specialists be evolved to assist the general advisers in more difficult problems. The training of such specialists would include a much higher proportion of pure science than is customary at present, and the qualifications demanded should approach that required of the research staff and college teachers.

(3) The Team recommends that the training of Advisory Officers be re-examined, as too little emphasis has been given to date to questions such as economics and marketing, farm management, and grassland husbandry.

(4) It is recommended that in-service training be increased and regular conferences be held, attended by the staff of the college and of the research institutes for the purpose of keeping the general advisers in step with modern developments.

(5) In at least one Province, Styria, advisers in general agriculture are at present financed only from temporary funds. The Team strongly recommends that where this practice is in operation such men should be employed on a permanent basis.

(6) The Team recommends that research, teaching and advisory work be more closely co-ordinated, both at national and provincial levels. The time taken for research findings to reach the advisers seems to vary widely. Every effort should be made to get such results applied to farm practice as quickly as possible. The adoption of the recommendation for the appointment of specialists should go a long way towards bringing about the co-ordination which is desirable.

(7) The Team was informed that during the winter the general advisers in Styria spend all their time teaching in continuation vocational schools and in conducting courses. It is, of course, essential to have qualified teachers in such schools and it is a sound principle to utilise those teachers in advisory work during the summer when the schools are closed. On the other hand, there is, in the opinion of the Visiting Team, a very great need for advisory work during the winter months. It is then time to make the farming plans which will have an important effect on the production to be secured during the next season. For that reason the Team recommends that an adequate number of the advisers continue their advisory activities throughout the winter.

(8) At present the personnel of the advisory services throughout Austria are inadequate for the needs of the farming population. More staff is urgently required to provide for the needs of small farmers and to allow for winter advisory activities

in Styria which has a better developed service than other provinces. The Team recommends that additional personnel be employed at the earliest opportunity to provide more adequate services than are at present offered.

(9) At present the Advisory Officers are severely handicapped due to lack of suitable transport facilities. Whilst appreciating the present difficulties of the country, the Team recommends that suitable transport facilities be provided for advisory personnel.

(10) At present there appears to be some differences between the salaries and terms of appointment of advisers in the different provinces. The Team recommends that a standard scale be agreed which would apply to the advisory staff of the whole country, and that pension arrangements be developed and made uniform.

(11) At present full use in not made of the local field demonstration in advisory work. It is recommended that greater use be made of this important aid in focusing attention on such matters as improved grassland husbandry. While the Team was impressed by the quality and variety of the visual aid materials in use, it is recommended that in the general work with groups, good farm demonstrations be arranged and conducted.

(12) The Team had the opportunity to inspect a group of rural domestic science advisers at work. Their activities covered a wide range of subjects and were achieving good results. The Team recommends that a small number of specialist domestic science advisers be appointed to keep the ordinary advisers abreast of new developments, and assist them by carrying out research work.

(13) The rapid development of youth work in Austria is commendable, but at present little of this youth work is concerned with the education of girls. The Team recommends that the age limit of the youth movement be lowered to a maximum of 20 or 21 years, and that girls be admitted to full membership as soon as possible. If this is done it may be desirable to divide the members into two age groups; the younger group of which, comprising youths between the ages of 10 and 14, might undergo extra voluntary training during their elementary education.

(14) In Austria elementary school education is compulsory for all children between the ages of 6 and 14 years. Some of them have the opportunity between the ages of 16 and 18 years to attend continuation-vocational schools. In many parts of the

country, the League of Youth provides training in agriculture to farmers' and labourers' sons. Few however, (approximately 10 per cent), have the privilege of attending the agricultural technical schools since such schools are rather expensive to maintain. The Visiting Team recommends that the continuation-vocational schools be improved and extended as rapidly as possible to provide a minimum of training in agriculture to all Austrian youth. It seems desirable that the training in these schools should follow immediately after that provided in the elementary schools i. e. during the period from 14 to 16 years of age. A complementary and further training could subsequently be obtained by joining the League of Farmers' Youth.

II

BELGIUM AND LUXEMBURG

Duration of visit: 26th February to 11th March, 1950

Members of Visiting Team:

Mr. Th. Vendelbo ANDERSEN (Denmark), *Chairman;*
Mr. Aslak LIDTVEIT (Norway), *Secretary;*
Mr. M. PORTAL (France);
Mr. Paul E. MILLER (United States), *E.C.A.*

1. Due to the relatively small size of the country, the team which visited Belgium and Luxemburg had an unusual opportunity to inform themselves on the types of farming, the Research institutions, the Colleges of agriculture, the farm organisations and the functioning of the advisory service. The 10-day trip to all parts of the country, including one day in Luxemburg, was preceded by a full day of discussions with officials of the Ministry of Agriculture. At that time the organisation of advisory work was explained by the officers in charge of the work. This preliminary discussion was followed by further conferences with some of the officials at the close of the survey.

BELGIUM

I. Introduction

2. To evaluate the Advisory Service in Belgium, a brief statement on Belgian Agriculture is necessary. The total size of the country is 7.6 million acres, of which approximately 4.3 million acres are agricultural land and 1.4 million acres forest land. The population is 8.6 million of which about 20 % or 1.7 million people live on farms and derive their income from agriculture. In 1949, 45 % of the agricultural area was under pasture and

meadows, 29 % was sown to cereals, 10 % with root crops, 11 % under pulses and industrial crops, and 6 % under green fodder crops. Fruit is the most important of the horticultural crops. The soil, in general, is fertile.

3. There are approximately 1,131,000 farms in Belgium, of which 292,000 are over one hectare in size. Of these 195,000 holdings are between 1 and 5 hectares, 56,000 between 5 and 10 hectares and 41,000 greater than 10 hectares. The size of the average farm is approximately 6 hectares. Sixty per cent of the farms are rented and 40 % are operated by owners. Most of the work on farms is done by the farmer and his familly. Only 40,000 workers other than family labour are employed in agriculture. The total number of cattle in 1949 was 1.9 million, of which 900,000 were milch cows. There were 244,000 horses, 1.05 million hogs and 18 million hens. Animal production accounts for 75 % of the total agricultural cash income of farmers. Belgian agriculture is diversified and intensive. Crop yields are among the highest in the world. The use of fertilisers is also higher than in most other countries in Europe. The main concern of Belgian agricultural policy has been to produce for the home market. Eighty per cent of the food needs of the population is supplied from home production. The important agricultural imports are bread-grain,feeding stuffs, flax for the linen production, cattle for meat and some dairy products. There is some export of eggs, pork and horticultural products. The export of agricultural products amounts only to 5 % of the country's total exports since Belgium is, essentially, an industrial country. The marketing of agricultural products is largely on a private basis although farmers' organisations handle about one-half of the milk delivered to the dairies. Co-operatives also supply their members with fertilisers, feeding stuffs and other farm supplies.

Aims and Scope of Advisory Service

4. The aim of advisory work is to increase the efficiency of the farmer in production practices. To the efforts of the official advisory service to accomplish this objective must be added the work of the several other agencies which have made significant contributions to the improvement of farm practice. Among these are farm organisations, the Agricultural Schools (both secondary and short-term winter schools), and the Agricultural Colleges at Louvain, Gembloux and Ghent. At the

same time the intensive research work being carried on at the three Experiment Stations, located at the latter centres, is also a contributing factor. By means of the various agencies, governmental and private, agricultural information is being made available to most of the farmers. The scope of advisory work has, to date, been limited to agricultural production. Very little work of an advisory nature has been done with farm women or farm youth, with the exception of that being promoted by some farm organisations.

II. Present Advisory System

Organisation of the Advisory Service at All Levels

5. The official Advisory Service is not organised as a separate section or department under the Ministry of Agriculture. The advisers in each subject group are responsible to the Technical Director of their division. Thus the Livestock Advisers are responsible to the Director of the Livestock and Dairy Section and the Horticutlural Advisers are responsible to the Director of the Livestock and Dairy Section and the Horticultural Advisers are responsible to the Technical Director in charge of all horticultural work. The Service is thus a straight line organisation on a subject matter basis. The Ministry is divided into departments, one of which is in charge of livestock production and veterinary services, and a second in charge of agriculture and horticulture. There are several divisions under each department. The Livestock Department is divided in 2 sections, one for livestock, including beef and dairy cattle, and one for veterinary services. In the section for livestock there are several advisers and assistants who work with farmers on questions related to livestock breeding, feeding and management. There is also a large field staff attached to the section for veterinary services. This staff is in charge of animal disease control and artificial insemination. While the members of this staff are engaged largely in regulatory work, they also are expected to do some advisory work on livestock disease control and sanitation. The Department of Agriculture and Horticulture is divided into six sections including a section in charge of research, a section on general agriculture, a section on general horticulture, a section of agricultural engineering, a section for the control of standards for animal feeding stuffs, seeds and fertilisers, and a section for the inspection service in connection

with the milling industry. Each of the sections dealing with general agriculture and horticulture has a number of specialised advisers attached to them

6. The different groups of advisers work independently of each other at both the Ministerial and the local level, and co-operation between them is limited. The Advisers in plant husbandry, in addition to their advisory work, are responsible for many of the details of the Government's programme for extending subsidies to individual farmers. These include improvement of grassland, farm buildings, silos and other projects for which subsidies are granted. There are also four women advisers whose work includes the giving of instruction to farm women in poultry breeding, poultry feeding, butter making and domestic economy.

7. Any discussion of the Advisory Service in Belgium would be incomplete without some mention of the farm organisations which contribute through their own activities to the total amount of advisory work being done throughout the country. The majority of Belgian farmers are grouped in several agricultural associations. The oldest of these are the Boerenbond, the Fédération des Unions Professionnelles Agricoles, and the Alliance Agricole Belge. The Boerenbond has over 90,000 members, with a large field staff which conducts educational work with its members, including men, women and youth. The team was impressed with the far-reaching programme of this Organisation and the influence it exerts in the Flemish area of Belgium in which its membership is located. In the South of Belgium, the Fédération des Unions Professionnelles Agricoles and the Alliance Agricole Belge exert a strong influence. There are also other agricultural associations of considerable importance. While these organisations have their individual programmes for the benefit of their members, they are all interested in economic policy. At times the policies advocated by the various organisations may not be in accord with those of the Ministry, although as a rule the organisations work closely with the Ministry of Agriculture. The field staffs of these "free" organisations, as they are called, all perform numerous educational services. They give many educational lectures for which they are paid from public funds. The lecturers and the subject matter of the lectures must be approved by the government advisory agents. Besides these organisations there are also local official agricultural groups called Comices agricoles. These Comices agricoles exist in nearly all districts and they receive small sub-

sidies to assist them in their activities. Most of them have educational programmes.

8. A further important factor which contributes to the education of farm people is the large number of secondary agricultural schools. In addition to these secondary schools, there are a considerable number of short-term or winter schools attented by farm youth. The Government advisers are responsible for organising many of these winter schools and serve as directors of them in many instances. Collectively the schools have made a large contribution to rural education in Belgium. For many years these schools were under the direction of the Ministry of Agriculture. Recently most of them have been transferred to the Ministry of Education. In the opinion of well-informed people the influence of these schools has declined because of the new arrangement.

9. There is an Advisory Council, the function of which is to advise the Government on matters affecting agricultural policy. This Council is called the Conseil Supérieur d'Agriculture (Higher Council for Agriculture). Its personnel includes, in addition to eight high officials designated by the Minister, fifty-seven professional representatives. Most of these latter delegates are from farm organisations, provincial Chambers of Agriculture and other organised groups.

Financing

10. The total value of agricultural production accounts for approximately one-sixth of the total output of Belgium. In contrast, the proportion of the National Budget devoted to agriculture is very low, being only 0,65 % of the general budget for 1950. To the financial allocations to the Department of Agriculture must be added a fraction of the financial assistance accorded to the Institute for the Promotion of Industrial and Agricultural Research. The latter institute allocates money to official agricultural stations and for research conducted by private institutes. As the Department of Agriculture does not include a separate agricultural advisory service, it is difficult to estimate exactly the percentage of its budget assigned to advisory work. The group were informed, however, that the total expenses for payment of the different advisers' salaries and travelling expenses represent nearly 8 % of the total departmental budget. Apart from the provisions as outlined above, subsidies are granted to numerous lecturers for giving talks on agricultural subjects

as previously noted. No exact figure could be obtained for the official expenditures on this type of work. In general, the support given from public funds for advisory work does not fluctuate from year to year and the trend is toward increasing the allocations being expended for that purpose.

Personnel

11. The following tables indicate the staff employed in the National Advisory Service.

	Number of staff	
	Advisers	Assistants
Agricultural Engineering	9	—
Agriculture	32	40
Horticulture	9	16
Home Economics (Women)	4	—
Livestock	22	118
Poultry	2	—
	78	174

The present ratio of advisers, including assistants, to farm holdings is one adviser to approximately 4,000 farms. It should be added that all the staff of 174 assistants have not, to date, been appointed. Officials stated, however, that funds were available to make these appointments during 1950. The salary of an adviser is 99,200 francs at the beginning of service, increasing every two years to a maximum of 171,000 francs. The salary for assistants is 49,000 to 80,000 francs. The maximum can be reached 20 years before retirement. The salaries of the agricultural advisory staff are on the same level as those in comparable public services in Belgium and appeared to be more satisfactory than in neighbouring countries.

Preparatory training and qualifications

12. All advisers, except those teaching Home Economics, have a University degree and are graduates of agricultural college. The assistants are not graduates of an agricultural college but have completed 3 years work in a secondary agricultural or horticultural school. Men selected for advisory work must have the necessary personal qualifications, as well as farm experience. Preliminary examinations are given candidates to determine their fitness for advisory work, as well as their aptitudes for working with farm people. New advisers are not given permanent appointments until they have completed 3 years

of service at the end of which time they are again re-examined and, if satisfactory, are given permanent appointments which entitle them to Civil Service status and retirements benefits. A similar procedure is followed for assistants although in the case of assistants the final examination is given after 2 years service.

In-service Training

13. In-service training is the responsibility of the Director in charge of each group of specialised workers and it varies considerably between groups. It was observed that the advisers responsible to the Director of each group meet each month in Brussels to discuss present and future work, and to meet research workers of other agricultural personalities invited by the Director to attend the conference. This admirable practice was not noted as being followed to a similar extent by the Directors in charge of all groups of advisers. Other forms of in-service training include annual conferences, and visits to the Experiment Stations. Previous to the last war, groups of advisory agents were taken on educational visits to neighbouring countries.

Advisory Methods

14. The most important method at present being used by advisers is the farm visit and, to a lesser extent, lectures to farm groups. In 1949 more than 7,000 lectures were given to adults by lecturers from the official Advisory Service and approved lecturers from the farm organisations. Considerable advisory work is carried out through the medium of the radio. There are 11 transmitting stations in Belgium and each station has a weekly programme of one hour's duration for lectures and information on technical agricultural topics. The extent to which the advisers participate in these programmes was not determined. Leaflets dealing with agricultural subjects are published by the Ministry and distributed through the advisers. Specialised information is provided at suitable times for farmers engaged in producing specialised crops. Experimental plots and field demonstrations are carried out in co-operation with the Experiment Stations. A rather extensive programme has been developed to extend the use of demonstration farm in the immediate future.

Programmes and Programme Planning

15. The programmes for each group of specialised advisers are discussed at the meetings with the Directors of Divisions

in the Ministry. These programmes are based upon current problems and factors affecting farm production. As stated elsewhere the official Advisory Service is concerned largely with technical agricultural problems, whereas the farm organisations are also concerned with social and economic problems. The farm organisations, especially the Boerenbond,—the membership of which is to be found largely in Northern Belgium,—issue a series of publications, both weekly and monthly, for the benefit of their members. These publications deal with social and economic questions affecting farm people. Their advisory staff give lectures on similar subjects. The lectures given by the organisations' advisers on technical agricultural matters are paid for by the Ministry of Agriculture if the local governmental adviser has approved. Other informed people also give lectures and are paid in a similar manner if the lecturer and the subject have been approved by the official adviser. The Boerenbond has a far more extensive educational programme for farm women than the official Advisory Service at the present time.

Research Relationship

16. There appears to be no organised relationship between the Advisory Service and the Experiment Stations. This is true even at Gembloux and Ghent which are under the Ministry of Agriculture.

Information and Public Relationship

17. Little direct action has been taken in regard to information and public relations by the Ministry up to the present, but very recently approval was given to the setting up of a new section under a Director who will develop such a programme. It is expected that agricultural information will be furnished to the News and Radio Services and to the members of the Advisory Service for use in their day to day work. The office will also prepare visual aids, including films, slides, graphs and other media of this nature. This new section, and its services, will be available to all sections under the direction of the Minister of Agriculture.

III. General Section

Evaluation and Suggestions for Further Development

18. (1) The present organisation for advisory work in Belgium is controlled by the direction of several administrative officers of the Ministry. The Director of each section or Officer-in-charge of a sub-section has his own staff of specialised advisers who work independently of the advisers responsible to the Directors of other divisions. There appears to be very little co-ordination of the advisory work by the Directors in charge of these divisions. It is believed that greater co-ordination would result in better work by the advisers and at less cost. It would also make possible more over-all planning. To illustrate this point, a programme for the improvement in milk quality requires the joint action and participation of the Home Economics Adviser, the Dairy Adviser, the Farm Engineering Adviser and a Marketing Adviser. All have an important contribution to make. The same type of approach is desirable and necessary for practically all farm problems. Only through a co-ordinated Advisory organisation at the top administrative level can this be possible. The formation of an Advisory Council in the Ministry comprised of the Directors of the several Divisions who have advisory agents under their direction might be considered as an initial step in this direction. As the value of this co-ordinated approach became apparent, further steps for integrating advisory work into one organisation, might well be taken. By such action greater over-all efficiency might be secured and a more comprehensive service provided to farm families.

(2) The present staff of advisory agents is organised on a specialised subject basis. While this form of organisation has its advantages, it is questionable whether the thousands of small farmers need the assistance of a different adviser to assist them in the different aspects of their farm operations. A well qualified adviser who can serve in the capacity of a "generalist" should be able to give sound advise on most of their problems, such as dairy and livestock, crops, soils and engineering. This approach is suggested in the interest of economy in both time and cost of services. Also the farmer learns to look to one man in his region for his advice and, having got to know him on a personal basis, has confidence in his judgment. Leadership

of an advisory service of this kind should be placed under an appropriate Director in the Ministry, retaining a limited staff of specialists to work with the general advisers.

(3) At the present time there are only four women advisers working with farm women on poultry-keeping, dairying and domestic economy. The staff on the Ministry was high in its praise of the work being done by these women. One farm organisation is also employing a number of women advisers and has developed a comprehensive programme in all branches of rural home-making for its members. The general approval of this type of advisory service would suggest that it be given a high priority in any expansion of the advisory service that is contemplated by the Ministry. Farm women in Belgium contribute substantially to the work of the farm as well as having the full responsibility of the home. Advisory service for women can help greatly in giving intelligent direction to this as well as other home-making activities.

(4) The system now followed for the appointment of advisers is based upon graduation from a recognised Agricultural College. After passing the usual examinations the accepted candidate is appointed to a regular advisory position. It was noted that a young adviser, without previous experience in the work, was not capable of giving the same type of sound advice that could be expected from an experienced worker. It is strongly recommended that young men who are appointed to advisory positions serve an apprenticeship under an experienced adviser for at least one year before being located in a position where they must assume the full responsibility for the work.

(5) The figures relating to employed advisory personnel indicate that there are 79 advisers with university degrees and that provision has been made for 174 assistants who will have only a secondary agricultural school education. It would seem that the ratio of assistants to advisers is rather high and that the service would be improved by reducing this ratio, through the employment of more advisers with university training. The recommendation made in paragraph (4) for the training of young advisory personnel with university degrees would serve two purposes. It would make available trained candidates for advisory positions and also reduce the number of assistants with limited educational qualifications.

(6) There is at the Ministry level a large well staffed section in agricultural economics, but no provision has been made for specialist advisers in that subject. The existing staff of

advisers does not include Specialists on marketing work or economic assistance to co-operatives in their advisory programmes, and it is strongly recommended that this work be initiated with farmers, both through the existing advisers and through the addition of marketing specialists to the staff. If this were done the results of the work in progress in the Economic Section in the Ministry would be made available to farmers to whom it is a vital concern.

(7) At the present time the Agricultural Colleges at Gembloux and Ghent are under the direction of the Minister of Education while the experiment stations located at these Colleges are under the direction of the Ministry of Agriculture. Each has its separate staff. This division of teaching and research between two ministries is not in the best interests of either agricultural education or agricultural research. The good teacher must also be actively interested in research, and likewise the research worker has much to contribute as a teacher. It is believed that students who are eventually to fill the positions of advisers, would be better trained if they had the stimulation that comes from a closer association with the research workers. This can only be possible when research professors also do some teaching—especially in the more advanced courses.

(8) The close relationship of the Advisory Service to the Agricultural Schools in Belgium is a highly desirable feature of the Service. As in the case of the Colleges, much of the direction of the Agricultural Schools has more recently been transferred from the Ministry of Agriculture to the Ministry of Education. It would be unfortunate if this change in policy would in any way affect this close relationship of the Advisers to the Agricultural Schools. Both have benefited from this association, and it is assumed that the organisation of many of these schools and the patronage they have had, has been a result of the Adviser's relationship to them. A policy which may change this relationship should be critically examined.

(9) At the present time, Advisory Work is being conducted by the Ministry of Agriculture and also by the Farm Organisations—especially in Northern Belgium. The fact that at least one Farm Organisation is devoting a substantial portion of its budget to this type of work indicates the value placed on the educational approach to rural problems and situations, as well as the acceptance of educational responsibility on the part of farm people. While the work by Farm Organisations is to be commended, the relationship between the Government Advisory

Service and that being sponsored by Farm Organisations needs careful study—especially as the plan of the Ministry to enlarge the Government Advisory Service is put into effect. The public and private services should supplement and complement each other. Collectively they can be a great force for improved rural life in Belgium. The Government Service should be strong enough to give national direction to all advisory work and its services should reach all people. It should also be able to give assistance to the educational workers in other organisations, else it will never attain the prestige which is required to meet its responsibilities adequately.

(10) It is understood that the Ministry has approved plans for a substantial number of new advisory workers who will function in an educational capacity. Until the Advisory Service is built up by the addition of the required number of advisory agents and assistants, the solution of some of the important problems affecting Belgian agriculture will be delayed. A broad programme of sanitation is needed to improve the milk supply and protect the health of the public. This one programme could occupy the full time of the Advisory Service for a considerable period of time. With the additional assistants which have been agreed there is approximately one Adviser or Assistant to each 4,000 farmers.

(11) The Ministry is to be commended for its recent decision in establishing a Section dealing with agricultural information. It is understood that this new Department will develop an Agricultural Information Service, prepare leaflets, film strips, slides, graphs and other forms of visual aids for the use of Advisers. It was observed that there is a definite need for this service by the advisers and others doing educational work. The creation of this new Department will substantially improve the Service.

(12) The Ministry is to be commended for the salary scales, retirement and pension system, now in effect for members of the Advisory Service. Salaries paid to Advisory Workers should attract well qualified and capable men and retain them in the Service.

(13) Much excellent agricultural research is being done by the Experiment Stations. Their work has a very direct application to the problems of Belgian agriculture. Advisory Agents should base their teaching to a greater extent upon the results of the research work being conducted at the Experiment Stations. While there is some informal contact between Advisers

and the workers at the Experiment Station, a much closer relationship would be highly desirable. More integration of the advisory work with the research programme would make it possible to have research results applied more rapidly and more effectively on the farms.

(14) Some In-Service Training is carried on throughout the year to keep advisers informed on both the subject matter and the general agricultural programmes of the Ministry. Additional In-Service Training in the nature of tours and trips to neighbouring countries would be desirable. Subjects which could well be emphasised in such tours would include methods of conducting Advisory Work, modern farm practices, construction and maintenance of farm buildings, livestock feeding and management, farm management and economics.

LUXEMBURG

1. The Advisory Survey Team which visited Belgium spent one day, March 6th, in Luxemburg and met with representatives of the Ministry of Agriculture, staff members of the Agricultural School and the Secretary of the National Farmers' Organisation. All of these representatives expressed a desire to learn more about the functioning of an Advisory Service and to examine the possibility of setting up such a Service in Luxemburg.

At present there is no advisory service in Luxemburg. All members of the staff of the Ministry of Agriculture, however, engage in some work of an advisory character, such as preparing news and radio releases, and, as time permits, the giving of lectures on agricultural subjects. The most important educational agency under the direction of the Ministry of Agriculture is the Agricultural School located at Ettelbruck. This Secondary Agricultural School established in 1883 has had a long and useful history. Its former students are now the Agricultural leaders in their communities and also fill important places in the co-operative organisations and in the general farm organisations. The school is a recognised centre for much informal Advisory Work, and its teachers have always worked in close co-operation with the farmers, practically all of whom have at one time or another visited the school.

2. Luxemburg is an industrial country and agriculture is of secondary importance in its economy. Nevertheless, agriculture

should be given every encouragement, since 18 % of the population are living on the land and are producing a major part of the country's food requirements. Agriculture represents an important segment of the total economy and should be encouraged and given the active support of the Government. In fact, it must have such assistance if it is to maintain its rôle of safeguarding the food requirements of the population and assist in balancing the general economy. A strong Advisory Service can do much to make this possible, a fact recognised by all countries of Western Europe. The Governmental Authorities of Luxemburg should give serious consideration to this question.

3. Farming in Luxemburg has lost ground in recent years because of a lack of manpower on the farms. Young men have left the farm because of greater opportunities in industry. As a result, arable land has decreased from 104,000 hectares prewar to 84,000 hectares in 1948. This is only one of the trends that point to the need for a well defined agricultural policy with strong Government support which would make farming a more attractive business and more remunerative in its turn. While Luxemburg is at present fortunate in having industries that can absorb the surplus rural population, it appears highly desirable that a proper balance be maintained between industry and agriculture.

4. In considering a programme of Advisory Work for Luxemburg, there are several favourable considerations. It is a small country and its farmers can be reached individually and effectively. Experience with the limited Advisory Work done indicates that its farmers would be receptive to an Advisory Service and profit considerably by such a service. The Agricultural School appears to be an ideal centre around which an Advisory Service could be built, since it has the confidence and respect of the farmers and has demonstrated the value of educational work with farmers. A modest Advisory Service need not be too great a financial burden on the Government. The visiting Team recommends that it be organised as a Department of the Agricultural School which is now under the direction of the Ministry of Agriculture. The Director of the School might well serve in the dual capacity of directing both the School and the Advisory Service. There would thus be little additional overhead or administrative expense, since the existing staff at

the School could well serve as the specialist staff and work in close association with the field agents who would do the Advisory Work.

5. Advisory Officers must be paid adequate salaries, be well trained and be the type of men in whom farmers have confidence. A small beginning, to serve as a demonstration of the value of an Advisory Service, should be initiated as soon as possible. Advisory Work should be financed from public funds since the benefits are directly in the interest of the public welfare. To this end, should financial assistance be unavailable, it is recommended that the funds provided for the numerous production subsidies be gradually reduced and the funds devoted to Advisory Work correspondingly increased.

6. It is important that any Advisory Programme be developed in harmony with the farmers' organisation (Farmers' Union) and also with the Farmers' Associations and Co-operatives. The Farmers' Union includes in its membership 90 % of all the farmers in the country and there are 778 different farmer's associations for the promotion of co-operative effort among farmers. All of these are important in the agricultural life of the country. An Advisory Service should give assistance to them in their various activities.

7. It is quite possible that the Farmers' Union, as well as some of the Co-operatives and other Associations, may desire to contribute to the support of an Advisory Service. It would, therefore, be desirable in the framing of any legislative act creating an Advisory Service to include a provision for accepting funds from private sources including business organisations or Farmers' Associations for the support of Advisory Work. It is emphasised, however, that since Advisory Work, as broadly conceived, is a public educational service in the interests of all of the people, it should be under the direction of the Ministry of Agriculture. This would enable the existing facilities of the Ministry to be fully utilised, and the farmers' associations and the public will be better served by having the Service under public direction.

8. Agriculture is daily becoming a more complex business. Such problems as soil management, fertiliser requirement, crop varieties, livestock breeding and feeding practices and plant and

animal diseases are among the more difficult problems which confront the farmers of Luxemburg. These can only be solved by keeping the farmer in step with modern agricultural developments and assisting him to put such developments into practice on his individual farm. An official Advisory Service is essential to obtain this end.

III

DENMARK

Duration of visit: March 13th to 25th, 1950.

Members of Visiting Team:

Mr. W. S. Gibson (United Kingdom), *Chairman;*
Mr. D. Hoctor (Ireland), *Secretary;*
Mr. K. Petrich (Germany);
Mr. A. H. Maunder (United States), *E.C.A.*

1. The Visiting Team observed agricultural conditions and the functioning of the Advisory Service in five Danish counties. Officials in the Ministry of Agriculture, officers of societies sponsoring Advisory Work and advisory workers gave information on the organisation and operation of the Advisory Service. The Team also visited the Royal Veterinary and Agricultural College, many research centres and a number of schools where they were supplied with background data on education and research activities. The National Agricultural Council, the Federation of Danish Dairies, the Central Co-operative Committee, the Danish Heath Society, and other farmers' organisations furnished information on their activities and relationship to Advisory Work.

I. Introduction

2. Denmark is a low-lying, level country made up of the peninsula of Jutland, the islands of Zealand, Funen and Loland-Falster and hundreds of smaller islands, many of which are uninhabited. There are few areas in the country over 100 metres above sea-level and more than half the country is actually below an elevation of 50 metres. The total area of the country is approximately 4.3 million hectares, of which 3.2 million hectares (i.e. 74.4 %) are devoted to agriculture and 350,000 hectares (i.e. 8.1 %) are under forest. The remainder of the country com-

prises heaths, dunes, bogs, lakes, rivers, roads and built-up areas. The country lies between 54° and 57° North latitude and the mean average temperature is 7.5° C, varying from about zero in February to 16° C in July. The annual rainfall ranges from 550 mm. for the Eastern part of the country to 750 mm. in Western Jutland. As a rule about 60 % of the rain falls in the second half of the year. On the whole the climate is favourable to agriculture although livestock have to be housed for about seven months of the year.

3. Soils of varying quality are found in different parts of the country. Those in the islands and in Eastern Jutland are of reasonably good quality, while in the Western and Northern parts of Jutland the land is generally sandy and lacking in natural fertility. The productivity of much of the land of Denmark may be attributed to the skill and perseverance of the farmers rather than to the natural fertility of the soil. The total number of agricultural holdings in Denmark is 208,147. Of this number 48.8 % are under 10 hectares in size, 49 % are between 10 and 60 hectares in size, and only 2.2 % are of 60 hectares or more. The holdings under 10 hectares comprise 16.1 % of the total agricultural area while those of 10 hectares or more account for 83.9 % of the area. As a result of the various Land Acts passed since 1898 about 25,000 new small holdings have been established while 15,000 small holdings have had their areas increased in the same period. About 95 % of the holdings are free-holds and are farmed by the owners.

4. Mixed farming, involving intensive tillage and the utilisation of the tillage crops principally for the production of animal products, prevails throughout the country. In 1949, 41.9 % of the agricultural area was under grain crops, 17.9 % under roots and potatoes, 21.6 % under temporary pasture, 15.1 % under permanent pasture, 3.2 % under other crops and 0.3 % in fallow. The livestock population in 1949 included 533,000 horses, 2,949,000 cattle, inclusive of 1,535,000 milch cows, 2,679,000 pigs, 67,000 sheep and 28,000,000 poultry. During the war there was a substantial decline in the livestock population, particularly in the case of pig and poultry numbers, mainly due to scarcity of imported feeding-stuffs. There has been a rapid recovery in recent years and the milch cow, pig and poultry numbers in 1949 were 93 %, 84 % and 84 % respectively of the numbers for 1939. On the other hand sheep numbers in 1949 were only 46 % of those for 1939. They showed no tendency to increase and were

actually less than in 1948. The number of milch cows, pigs and poultry at the present time are approximately the same as in pre-war days. Crop production levels are very high in Denmark. The yields per hectare in the quinquennial period 1935-1939 and in the year 1948 are shown in the following table:

Quintals (100 Kgs) per hectare

	Wheat	Rye	Barley	Oats	Potatoes	Sugar beet for factory	Mangels	Swedes
1935/39	30.4	17.6	30.1	27.5	171	380	618	590
1948	36.6	23.9	33.1	30.0	212	350	525	483

High standards of production have also been achieved in the case of livestock. Thus in pre-war years the average annual milk yield per cow had reached 3,200 Kgs. During the war there was a considerable falling off in milk yields owing to the dearth of imported feeding stuffs. In recent years, however, there has been a gradual improvement and pre-war yields are again being approached. Since agricultural exports are vital to the country's economy, the Government endeavours to develop exports by controlling quality through the use of the "Lur" brand which is a guarantee of good quality.

5. The total population of the country in 1948 was 4,190,000 of which 27 % derived their livelihood from agriculture and 33 % from handicrafts and manufactures. A drift of population from the country to the towns has been taking place over a considerable period and migration is most marked amongst women. Thus in 1940, 55 % of the agricultural population were men and 45 % women.

6. Since 1814 Denmark has had compulsory primary education for children between the ages of 7 and 14 years, although parents are allowed some freedom as to how they may comply with the official regulations. Over 90 % of the children attend the elementary schools provided by the Public Authorities and most of the remaining 10 % attend private schools. About 25 % of the pupils continue their education in secondary schools and nearly 3,000 pupils obtain the Higher School Certificate annually. The Folk High Schools, the first of which was established in 1844, have played a particularly important part in

the education of the Danish people. These residential schools are attended mainly by young men and women from rural districts between the ages of 18 and 25. The schools are subsidised by the State but the Principal is free to develop his own programme and to adopt his own teaching methods. Great emphasis is placed on training in citizenship and the development of character and much attention is given to Danish history, world history, Danish language and civics.

There are 55 such schools with a total annual attendance of about 3,000 young men and 4,400 young women. Many of the pioneers in the Danish Co-operative movement had been pupils in the Folk High Schools. The standard of general education to be found among farming people in Denmark compares very favourably with that in most other countries. Agricultural education is referred to at a later stage in the report.

7. The Danish genius for organisation has found expression in a very well-developed co-operative system. Almost every farmer is a member of one or more co-operative societies. In 1947 about 90 % of the milk sold to creameries, 88 % of the pigs sold for slaughter and 28 % of the egg production were handled co-operatively. There are well-organised co-operative societies dealing with cattle exports and different aspects of agricultural production and marketing. Co-operative purchase societies deal in farm and household requirements. It has been estimated that about 36 % of the fertiliser requirements and 52 % of the feeding stuffs are procured through such societies. The co-operative movement operates in numerous fields and it has done a great deal to provide the Danish farmer with his requirements at reasonable prices and to enable him to secure the most favourable prices for his products.

8. The National Federation of Agricultural Societies combines with the National Federation of Co-operative Societies, a national marketing organisation, to form the Agricultural Council. This Agricultural Council plays a most important part in Danish agriculture, e.g.

(1) By participating in conferences with the Government and the Ministries in connection with various agricultural matters;

(2) By taking part in trade negotiations with other countries, and

(3) By operating an information service, which through the

medium of a weekly journal keeps its members in touch with economic developments and news of farming interest; mainly in the field of marketing.

The National Federation of Small-Holders' Societies is equally important but entirely independent of the National Federation of Agricultural Societies and is not affiliated with the Agricultural Council at the present time. When negotiations are held on the national level in connection with agricultural matters special representatives of the small-holders are appointed to take part.

Aims and Scope of Present Advisory Service

9. The primary objective of Advisory Work is to improve the income and level of living of the individual farmer and his family. Its functions include informal education of farmers, labourers, farm youth and farm home-makers; advice to farmers and farm home-makers; local experiments in plant culture and much administrative work in connection with the keeping of the records of the Farmers' Associations by which the advisors are employed.

II. Present Advisory Service

10. From the time of its establishment in 1769, the Royal Danish Agricultural Society took an active part in furthering all movements for the advancement of agriculture. In 1860 the Society laid the foundation of the present Advisory Service when it appointed T.R. Segelcko as adviser in dairying. In the decades that followed, further advisers were employed and by 1880 there were twelve advisers at work in the country. In 1887 the Government, which had previously given some financial encouragement to Advisory Work, appointed a number of advisers in various branches of farming. At the beginning of the present century there were 67 officers in the Advisory Service, 49 of whom were employed by the Agricultural Societies and 18 by the State. From 1910 onwards the Small-Holders' Associations, which were rapidly gaining strength, began to appoint advisers for their own members. Other organisations such as the Federation of Danish Dairies and the Danish Market Gardeners' Association have from time to time taken similar steps. In recent times the number of advisers in the employment of societies has grown very considerably while the number of State advisers has been gradually declining. Thus out of a total of 601 advisers who were employed at the beginning of the present year, there

were only 11 State advisers and of these four were acting as Agricultural Attachés in the United Kingdom, the United States, Germany and Russia. The following table which has been prepared from figures furnished by the Danish Ministry of Agriculture indicates how the Advisory Service has expanded in recent times:

Year	Number of Advisers
1870	5
1890	31
1910	119
1930	326
1950	601

11. The existing services in Denmark are now operated mainly by two parallel but independent groups of societies. The first group comprises the Agricultural Societies with about 140,000 members and the second group 1348 Small-Holders' Societies with about 114,500 members. These Societies are self-governed and receive Government grants for their Advisory Services. Each of these groups has provincial federations. The provincial federations provide delegates to form the two national federations.

The districts covered by the Agricultural Societies are not defined and they do not correspond to any definite administrative area. The Small-Holders Societies are, on the other hand, generally organised according to local administrative districts, parishes or countries. There is great variation between the membership strength and resources of the different societies and a corresponding difference in the extent of the Advisory Services provided by them. The wealthier societies usually have at least three advisers—one in crop husbandry, one in animal husbandry and one in accountancy. On the other hand several Small-Holders' Societies generally combine to appoint one or more advisers. This procedure is often followed by the smaller Agricultural Societies. Generally the Advisory Services of the Agricultural Societies and of the Small-Holders' Associations are entirely separate and independent. There are, however, instances of co-operation between the two organisations. As a rule societies appoint from among their members committees to deal with such subjects as Plant Culture and Animal Husbandry. These committees direct the work of the Advisers dealing with their particular subject.

Personnel

12. The present Advisory Service in Denmark comprises 86 advisers in Domestic Economy who are employed by the Agricultural Societies, by the Small-Holders' Societies or by special Housewives' Associations—in addition to the officers shown in the following table:

Employer	Number of Advisers Employed
Government	11
Local Agricultural Societies	258
Provincial Federations of Agricultural Societies	32
Local Small-Holders' Societies	69
Provincial Small-Holders' Federations	21
Local Agricultural and Small-Holders' Societies jointly	26
Other Local Societies	10
Other Provincial Associations	46
National Associations [1]	42
Total (excluding the Domestic Economy Advisers)	515 [2]

Since the advisers are employed by the societies in Denmark, the services of these advisers are not available to non-society members. Should a farmer who is not a member of the local society request advice on a particular question, he is expected to take out a membership card in the society by which the adviser is employed.

13. The first advisers appointed in Denmark dealt with the dairy industry. The appointment of advisers in animal husbandry became popular at a later period. About the beginning of the present century Societies became interested in employing plant culture advisers and at a later period services in other special branches such as accountancy and domestic economy were developed. The tendency to appoint advisers in special branches rather than in general agriculture has persisted up to the present time. The following figures indicate how specialised the Advisory Work has become.

[1] The National Federations of Agricultural Societies or of Small-Holders' Societies do not employ any advisers. Advisers are however employed by some of the national livestock breed societies, the Federation of Co-operative Societies and the Market Gardeners' Association.

[2] To this total must be added 200 assistants who have also received training at the Royal Veterinary and Agricultural College.

Subject	Number of Advisers
Plant Culture	102
Plant Culture and Accountancy	14
Plant Culture and Soil Improvement	1
Plant Culture and Animal Husbandry	13
Plant Culture and Assistance to Young Farmers' Clubs	17
Soil Improvement	6
Grassland Management	5
Horticulture	59
Animal Husbandry	77
Animal Husbandry and Assistance to Young Farmers' Clubs	2
Animal Husbandry and Accountancy	4
Dairying	17
Poultry Breeding	12
Accountancy	88
Young Farmers' Clubs	23
Buildings	9
Buildings and Plant Culture or Animal Husbandry	4
Machinery	5
Combating of Pests	4
Rabbits	4
Fur-bearing Animals	5
Bee-Keeping	1
General Advisers in Agriculture	40
Domestic Economy	86
Miscellaneous	3
	601

Advisory Methods

14. It is difficult to generalise on the activities of advisers in Denmark, since there are so many different employing bodies and so many different types of advisers. The Plant Culture advisers carry out a great deal of experimental work with fertilizers, crop varieties, seed mixtures, lucerne growing and weed eradication. Lectures and short courses are given generally during the winter months. In 1946-1947 a total of 8,428 young men attended such courses. Animal husbandry advisers deal with the selection of breeding stock, the keeping of herd-books and the organising of cattle shows. They also deliver lectures on the general management and feeding of livestock and occasionally they give practical courses on such subjects as machine milking and animal judging. The advisers in accountancy prepare monthly and annual statements from the daily financial records kept by farmers. Their work is co-ordinated by the Institute of Farm Management and Agricultural Economics which collects and analyses the accounts. These advisers, in addition to contributing to economic research, also visit farms at

certain intervals to discuss farm management problems. The domestic economy advisors give courses, including practical demonstrations in cookery, sewing, jam-making and food preservation. They also give advice on the planning and equipping of farm homes with a view to the promotion of comfort and the removal of drudgery. They investigate and give advice on family dietaries. Farm visiting, a particularly valuable means for imparting practical advice, is practised by all advisers to an extent which varies according to the importance attached to this means of instruction by the employing association and the individual adviser. The telephone, pamphlets, newspapers, farm journal articles and lectures are widely used. A minimum of half an hour each month and ten minutes each Sunday morning are devoted to Agriculture in the Radio programme and similar times are allotted to Horticulture. There is also a three-minute broadcast on home-making each morning.

Preparatory Training and Qualifications of Advisers

15. The Agricultural Advisers are trained at the Royal Veterinary and Agricultural College at Copenhagen where there are six different branches of study: Agriculture, Horticulture, Dairying, Land-surveying, Veterinary medicine and Forestry. Veterinary, forestry and land-surveying students are required either to hold a matriculation certificate or to have passed a secondary school examination in addition to a special entrance examination held by the College. A similar standard of general education is not required in the case of the agricultural, horticultural and dairying courses. To become a student in one of the latter courses, it is however necessary to have a certain knowledge of German, English, Danish and mathematics. Entrants must have spent at least five months at an Agricultural School, a Horticultural School or Dairying School. They must also produce evidence to show that they have had the required number of years of practical experience which is three years in the case of agriculture, five years in the case of horticulture and four years in the case of dairying. The College courses for a primary degree in Agriculture, Horticulture and Dairying are rather less than three years' duration and are, therefore, much shorter than those obligatory for a similar degree in Land surveying, Veterinary Medicine or Forestry. The courses for the degrees in the latter subjects are of 4 3/4, 5 and 6 years' duration respectively. Before appointment as advisers, graduates usually work

for some time as agricultural teachers or as assistants to experienced advisers. Building advisers are trained in a different manner—some are agricultural advisers with supplementary training in building construction and some are trained as architects. Candidates who desire to become domestic economy advisers must undergo two years' practical work followed by a five months' course at an Agricultural School. They can then take the entrance examination to one of the Domestic Economy Training Schools where training courses of three years' duration are given.

In-service Training

16. Little In-Service Training is given in Denmark, because there exists no co-ordinating body to organise such matters.

Programme and Programme Planning

17. With the exception of two annual meetings convened for the planning of field experiments, there is no attempt at programme planning other than in the local field covered by each society.

Agricultural Schools

18. There are 26 residential agricultural schools in Denmark which are privately owned but state-aided. The courses given at these schools are mainly of a theoretical nature. They are generally either of five to six months' duration (beginning in November and ending in March or April) or of nine months' duration (commencing in November and terminating in July). Many of the pupils who attend these schools have already attended a Folk High School. About 2,500 young men attend the courses annually. Teachers at agricultural schools occasionally do some Advisory Work and advisors occasionally give some instruction at agricultural schools.

Research Relationships

19. Research in Denmark is carried out at the Royal Veterinary and Agricultural College and by other special institutions under the direction of the Ministry of Agriculture. There are ten State Experiment Stations and three Branch Stations for soils work and plant culture. The Agricultural Research Laboratory for animal husbandry has sections for animal physiology, and for experiments on cattle, pigs and poultry. Other institutions include the State Seed-testing Station, the State Machinery Test-

ing Station, and the State Experimental Dairy. Plant breeding is now carried out by co-operative organisations and by private firms. Experiments on soil improvement and the cultivation of heath and peat bogs are conducted by the Danish Heath Society. Special Advisory Committees to the Ministry of Agriculture ensure that the work of the special research institutions is of practical value to farmers. These committees approve of the proposals made by the Directors of the different research departments. In the case of animal husbandry this special committee has a membership of seven, comprising two members from the National Federation of Agricultural Societies, two members from the National Federation of Small-holders' Societies, one member from the Royal Agricultural Society, one member from the National Committee for pig-breeding and one member from the National Committee for poultry-breeding. The results of the work of the research institutions are brought to the notice of the advisers at special meetings arranged annually and through the medium of pamphlets which are published periodically.

20. In addition to the experiments carried out at the Government Experimental Stations, the local advisers in plant culture carry out approximately 3,000 field experiments each year. The individual adviser has much freedom in the planning of his experimental work. Some special measures are taken to co-ordinate the work of the experimental stations with that of the advisers and place the experimental work of the advisers on a uniform basis. In December of each year there is a general meeting to which are invited the Government Committee on Plant Research, the Directors of the State Experiment Station, the Professors of the Royal Veterinary and Agricultural College, representatives of the State Seed-Testing Station, the Danish Heath Society, the Provincial Committees on Plant Culture attached to the Agricultural Societies and Small-holders' Societies, the Provincial Advisers and the Local Advisers. At this meeting crop and soil problems are discussed and proposals are made for new experiments. Recommendations are made as to the experiments to be carried out at the government stations, and as to those to be conducted by the local advisers. Further meetings are held in each Province early in February in connection with the planning of the field experimental work. The directors of the Provincial experiment stations, the Provincial advisers, the local advisers in plant culture, and representatives of the provincial and local societies are invited to this meeting. As a resul of the special

measures taken, there is much uniformity in the experimental work carried out by advisers. The staffs of the research institutions and the professors of the Royal Veterinary and Agricultural College frequently give advice to farmers when requested, and their services as lecturers are often in demand.

Youths' Organisations

21. Young farmers' organisations receive official encouragement and are gaining strength in Denmark. Up to the present the Young Farmers' Club movement has been concerned mainly with boys and young men ranging from 15 to 30 years of age. It is hoped to develop club work among girls in the future. The organisation of short winter courses of from 30 to 50 hours' duration is one of the typical activities of these clubs. Competitions in ploughing, milking, care of livestock, stock judging and the cultivation of small plots are other features of their work. The movement is at present considering the feasibility of an exchange of selected members with young Farmers' Clubs of other countries.

Finance

22. In 1949 the Government budgeted for an expenditure of 153,000 Kroner for its own advisers and 1,800,000 Kroner for the advisory services operated by societies. In addition provision of 700,000 Kroner was made for the work done in connection with plant culture and livestock shows. It is estimated that the State grant for the Societies' advisory service represents only 20 to 30 % of the total cost of that service. A grant is not made towards an adviser's salary unless he is paid a minimum of 3,000 Kroner per year, and at least half his time is spent on advisory work. This is the only State regulation with regard to salaries for advisers. Salaries and travelling expenses paid by Societies vary to a very marked degree. Usually, the salary of an adviser is from 8,000 Kroner to 15,000 Kroner. Plant culture advisers occasionally supplement their incomes by acting as State supervisors for the control of plant diseases, while animal husbandry advisers often increase their carnings by doing secretarial and administrative work for cattle breeding societies. Many advisers also earn additional income by writing articles for newspapers and farm journals. The Societies derive part of their revenue from membership fees which may be 10 to 20 Kroner for a farmer with from 10 to 30 hectares. The average membership fee is, however, only 5 Kroner. Sometimes, a society adds to its

income by other means such as by the sale of seeds and lime, to members, by contract work such as spraying or by holding agricultural shows. In general the services of the adviser are provided free of charge to members of the Societies. Fees are, however, charged for some services such as the provision of plans for buildings, soil analyses, preparation of accounts, and advice to nursery-owners.

III. Evaluation and Suggestions for Further Development

23. Extraordinary progress has been made in raising the productivity of Danish agriculture during the present century. As a result largely of the extended use of natural and artificial fertilisers, the utilisation of improved crop varieties and the application of control methods for crop posts and diseases, the aggregate harvest yield, measured in food units, was 66 % higher in the quinquennium 1935-1939 than it was in the period 1910-1914. The production of milk was increased by 66 %, of pork by 51 % and of eggs by 215 % during the same quarter of a century. Simultaneously with the increase in production there has been an improvement in the quality of agricultural produce and in the development of farm organisations to secure raw materials for agriculture at the minimum cost and the most remunerative returns possible for farm products. Other factors which contributed to this advance include the research service and the general educational level, the influence of the agricultural and the Folk High Schools, the demand from abroad for agricultural produce and above all, the energy, industry and natural intelligence of the Danish farming population. Denmark's economy depends very largely on her ability to maintain a high level of agricultural exports. In the past she profited considerably by the imports of large quantities of grain and high-protein concentrates, most of which come from what are now dollar or hard currency countries. In the peculiar circumstances of Danish economy it is vital that the research and advisory services should be brought to the highest possible level of efficiency.

24. (1) There are several different organisations operating advisory services in Denmark. It is the opinion of the visiting team that co-ordination between these organisations is urgently needed. It is usual, for example, to find one adviser employed by an Agricultural society and another adviser in the same branch of farming employed by a Small-holders' Society covering the

same territory. This duplication of services in many cases leads to unnecessary expense and duplication of effort.

(2) Since the appointment of advisers depends upon the initiative and resources of the society or societies functioning in a particular area there is great variation in the extent and character of the services provided in different parts of the country. Districts which are most in need of advisers are often very inadequately served because of the limited resources of the local societies or the lack of progressive leadership.

(3) There is no effective central co-ordination or direction of the advisory services which function under local or provincial societies. More central co-ordination should prove very advantageous in the promotion of national agricultural policy which is a matter of vital importance at the present time. Danish farmers have a remarkable capacity for organisation and direct state interference is contrary to their philosophy of life. For these reasons it seems desirable that consideration be given to the feasibility of setting up a national co-ordinating Council for advisory work which would comprise representatives of the Ministry of Agriculture, of the farmers' associations and of the advisers. This National Council might operate through regional committees to eliminate present duplication of effort and to organise the various services on a team basis.

(4) It appeared to the visiting team that the Danish Advisory services work in too specialised a way at the farmer level. It was stated for example that while Plant culture advisers consider it their duty to give advice on the making of silage they do not regard it as being within their province to advise specifically on the feeding of the product. In many districts there are no general advisers whose function is to take an overall view of the farm production and management. It should lead to greater efficiency and economy if there were more advisers in general agriculture who would be capable of dealing with all ordinary farming problems. At the provincial or national level there might be a number of highly trained specialists including specialists on farm management who could be called upon when problems of special difficulty arose. There would still, of course, be need for advisers in special branches such as poultry keeping, horticulture, etc. While Danish agriculture has made remarkable strides, under the present system, it is recommended that the system should now be re-examined in the light of the above discussion.

(5) Since the general education and technical efficiency of

the Danish farmers are of a high level, it is essential that the education and training of the adviser should be of the highest standard. Entrants to the agricultural, horticultural and dairying courses in the Royal Veterinary and Agricultural College are not subjected to any special written examination at the present time. Consideration should be given to the feasibility of requiring future entrants to pass a written examination of matriculation standard and to the inclusion of more basic science e.g. physics, chemistry, botany, and zoology during the early part of the course.

(6) It is understood that some advisers undertake a great deal of field plot work. While recognising that this work has resulted in developing local interest and in helping to solve local problems it is suggested that it now occupies too high a proportion of the advisers' time and that only that amount needed for demonstrational purposes be undertaken.

(7) The salaries and travelling expenses paid to advisers vary a great deal from one society to another. Many advisers have such low salaries and expense allowances that they are obliged to engage in some other part-time-occupation and they cannot, therefore, give undivided attention to their work. The visiting team have been informed that many very capable advisers have left advisory work in recent times to take up other more lucrative employment. It is recommended that in the interests of the service as a whole, steps be taken to ensure reasonable salaries and expenses for the advisers.

(8) It is of great importance that advisers should be kept up-to-date in technical matters. The regular issue of abstracts of recent research work would be a step in the right direction.

(9) It is recommended that more attention be given to the provision of in-service training. Such training might be in the form of regular refresher courses and educational tours in other countries. The refresher courses might include instruction in advisory methods.

(10) Advisory aids such as lantern slides and film strips have been developed only to a very limited extent in Denmark. Few advisers have access to projection equipment and societies are not organised so that the material at present available can be fully used. Consequently, the position can only be regarded as unsatisfactory for an agricultural country employing 600 advisers. The visiting team recommends that a central office, adequately staffed and equipped, should be established to deal not only with the preparation and collection of such material but also to organise its distribution among the advisers.

(11) Although agriculture is of primary importance in Denmark, relatively little time is devoted to this subject on the radio. It is recommended that more attention might be given to broadcasting as an organ of advisory work.

(12) The movement of girls from the country to the town is at present very pronounced. The promotion of women's organisations and the development of advisory work in the arts of homemaking can do much to arrest this flight from the land. It was noted that the number of domestic economy advisers has more than doubled since 1939. There is now an adviser in this branch for every 2,400 holdings. It is suggested that there is scope for still further expansion in this sector of advisory work.

IV

FRANCE

Duration of visit: 27th February to 11th March, 1950.

Members of Visiting Team:

Mr. J. M. A. PENDERS (Netherlands), *Chairman*;
Mr. G. R. YTTERBORN (Sweden), *Secretary*;
Mr. S. ORLANDI (Italy);
Mr. A. L. DEERING (United States), *E.C.A.*

1. The Visiting Team to France had opportunity to confer with representatives of the Ministry of Agriculture at which time they were provided with much information relating to French agriculture and advisory work. Every effort was made to give the Team in the limited time available, the broadest possible view of the agricultural situation and contacts were provided with many informed people. Visits were made to four representative sections of the country. Centres visited included an Agricultural Winter School, a Home Economics Schools, and the Experiment Stations. Conferences were held with the Directors of the Agricultural Service, with the Federation of Farmers, with Directors of Co-operatives, and with several of the Prefects. Opportunity was taken to discuss the advisory service with prominent farmers, advisers, and other interested people.

I. Introduction

2. France presents a landscape of infinite variety—undulating pastures, large flat arable plains, salt marshes, forest, vineyards, bare arid areas, pine woods and sand dunes. The total land area is approximately 55 million hectares of which 33.3 million hectares were classified as cultivated land in 1948. Of the cultivated land, 21.1 million hectares were arable land and 12.3 million hectares under grassland at that time. There are 2,472,100 farms

of which nearly half are between 1 and 10 hectares, and 250,000 are less than 1 hectare. Nine hundred and twenty seven thousand farms are from 10 to 50 hectares in area and 105,100 farms exceed 50 hectares. Most of the small farms are located in Southern France and they are in the main devoted to vinegrowing. Larger farms are most frequent in the North and North West where cereals and mixed farming predominate. In 1946, there were 20.5 million people employed in France of which 7.4 million, or 36 %, were engaged in agriculture and forestry. During the war there was a slight increase in the farm population but the trend is downward. It is estimated about one fourth of the total national income is derived from agriculture. The most important agricultural products are wheat, wine, fruit, vegetables, potatoes, sugar-beet, meat, milk and poultry. The agricultural production marketed in 1948 was: wheat 10.5 %, wine 14.5 %, fruit and vegetables 12.3 %, potatoes and sugar-beet 6.2 %, meat 20.2 %, milk products 13 % and poultry products 18 %.

French agriculture has now reached its pre-war level of production. There have, however, been some changes in the pattern of production. The wheat and oats acreage has been reduced, while the acreage under oilseed and orchards has increased. The number of farm horses decreased by more than 10 % while the number of farm tractors is gradually increasing. There are 115,000 tractors in France at the present time. Farmers' co-operatives are well developed in some parts of the country. There are approximately 5,556 processing and marketing co-operatives, 1,374 supply co-operatives and 4,742 co-operatives for co-operative use of equipment among members. Eighty five per cent of the wheat, 50 % of the milk, and 25 % of the wine is marketed co-operatively while 55 % of farm supplies are bought through co-operatives. Increased efforts are being made to improve quality. Farmers largely borrow through credit co-operatives where credit can be obtained at a lower rate (at present 3 %) than at commercial banks. Short term credit requirements are covered by farmers' deposits and by rediscounts of bills at the Bank of France. Long and medium term requirements are met by the State loans and by farmers' applications for five year Government bonds. The credit co-operatives are supervised by the National Farm Credit office, which is a Public Institution. In order to secure social welfare among the rural communities, special Government measures have been taken. These include:

(*a*) Social insurance for all workers employed in agriculture, members of farm workers' households if they are not co-partners in the farm, and for small farm operators against wage loss due to illness, maternity, disability, old age and death. Half of the cost of this insurance is paid by the employer and the other half by the worker;

(*b*) Insurance against injuries for farm workers. The employer is, however, responsible for injuries occurring while in service, but he can insure against this risk with any agency to which he pays as a premium 3.5 % of the wage of the worker;

(*c*) Family allowances which consist of maternity grants, family grants, "one-salary grants", and parental allowances. Farm workers pay no contributions for family allowances;

(*d*) Limiting of the working hours for farm workers to 2,400 hours per year. For work done outside the official working hours a 25 % additional wage must be paid.

3. The Farmers Co-operatives and farmers organisations are joined together in national Federations. There are four such federations namely the Federation of farmers professional associations, the Federation of farmers co-operatives, the Federation of farmer credit co-operatives and the Federation of farmers insurance co-operatives. These four federations are joined together in the Confédération Générale de l'Agriculture.

Aims and Scope of Advisory Service

4. The "Monnet Plan" for development of French agriculture aims at:

(*a*) The production of sufficient food supplies for the country including the Saar region and a surplus of some commodities for the overseas territories;

(*b*) The reduction of the traditional imports of feeding grains and other animal feeding stuffs by increasing home production of such items and by better utilisation of grass and fodder crops;

(*c*) The export of large quantities of basis food products.

To achieve the aims of the "Monnet Plan" the following measures have been adopted:

(i) Fixed prices for farmers and an export outlet for certain basic agricultural products. Guaranteed prices are already in operation for wheat, feeding grains, milk, oil-

seeds and sugar beet. Long term export contracts are planned with foreign importing countries;

(ii) Increase of supplies of the requisites required for the expanded agricultural production. Production of fertilisers and tractors has already surpassed the pre-war level. In 1949, the production was approximately 20,000 tractors. The programme for the future years foresees the use of 200,000 tractors and a production of 50,000 tractors annually. The use of fertilisers is still on an average comparatively low. The estimated average production of wheat before the war was about 1,500 kg. per hectare. It is estimated that this can be raised to 2,000 kg. per hectare in a few years, mainly by an increased use of fertilisers;

(iii) Collective land improvement schemes:
The investment programme includes the consolidation of fragmented holdings and the provision of better equipment for 2 million hectares. It is estimated that production on these 2 million hectares can be increased 25 % by these measures. Reclamation of 400,000 hectares of waste land and the irrigation of 50,000 additional hectares, in an area especially suited for fruit and vegetables, is also envisaged. The programme will also require the ploughing up of about 100,000 hectares of permanent grassland;

(iv) Development of processing and storage facilities for several agricultural products.

The realisation of these goals depends on the extent to which it will be possible to increase the acreage of cultivated land and the production per hectare.

5. The Visiting Team had some difficulty in obtaining accurate information as to the percentage and classes of farmers reached by the Advisory Service in France. The impression gained was that in regions where small farms predominate only a very small percentage of the farmers were reached by the advisers. Each advisory officer (or "Engineer" as he is called), in these regions serves more than 10,000 farmers. Nearly half of the total number of farms in France are of less than 10 hectares in size and the average sized farm is approximately 20 hectares. Farmers organisations including co-operatives have only limited relationship at national level with the Advisory Service of the Ministry. At the Departmental level there appears to be a close

co-operation with farm co-operatives. The French Government appears to provide only a limited support to agricultural work since only 1 % of the Government officials deal with agricultural matters. It was further noted that agricultural teaching receives only 1/30th of the Government financial support for technical education.

6. The Advisory Service would seem to have a well developed programme dealing with production practices. Ihe team gained the impression, however, that the scope of these programmes is not as extensive as it should be in the field of Farm Management and Farm Economics. The Advisory personnel is limited in number and in addition to advisory work they are charged with many regulatory and administrative duties. Notwithstanding these handicaps the members of the advisory service have made a very important contribution to the solution of the national agricultural problems.

II. Present Advisory System

7. The Agricultural Advisory Service is responsible to the Ministry of Agriculture. Under the Minister, the Secretary of State and their Cabinets there are the following Branches and Directorates in the Central Administration:

(*a*) The Administration and Personnel Branch;
The Study and Documentation Branch;
The General Agricultural Inspectorate Branch;
The Food Control Branch.

(*b*) The General Directorate for Forestry, Hunting and Fisheries;
The General Directorate for Rural Engineering and Agricultural Hydraulics;
The General Directorate for Agricultural Production;
The General Directorate for Professional and Social Affairs.

There are also three national institutions of primary importance which have legal status and which are directly responsible to the Ministry of Agriculture. These are the National Institute of Agricultural Research, the National Office for Agricultural Credit and the National Interprofessional Crop Bureau.

8. For the purpose of administration, metropolitan France

is devided into 90 Departments. The Agricultural Advisory Services are organised at Departmental level and thus there are 90 Advisory Service Directorates. There are four separate Directorates for non-metropolitan France — Martinique, Guadeloupe, Reunion and Guyana. Each Advisory Directorate consists of a Chief Engineer, a Deputy-Chief-Engineer, a number of engineers and an administrative staff. In many Departments there are more than 10,000 farmers to each adviser and at the same time the Engineer has to carry out the many administrative and regulatory duties attached to his post. In June 1949 the Ministry authorised the Chief Engineers in each Agricultural Directorate to employ experienced farmers as auxiliaries. The "auxiliaries" assist the Engineers during their free time and advise farmers in their area. They are not generally paid but they receive an allowance for travelling expenses. There are about 10 such "auxiliaries" in each department. In some departments full-time agricultural teachers are employed for post-scholar courses, but at the same time they carry on some Advisory work, mainly on experimental and demonstration field plots. The Agricultural Service Directorates are responsible for their Advisory administrative work to the Directorate for Agricultural Production in the Ministry of Agriculture. For their work in connection with co-operative and social questions they are responsible to the Directorate for Professional and Social Affairs and for their work on agricultural statistics and investigations to the Study and Documentation Branch Section of the Central Ministry. In principle, the Advisory Officers are not specialists. The Agricultural Service did not include specialists, with the exception of those in the field of plant protection and horticulture, until recently. At present there are six specialists employed to deal with subjects including fodder crops, animal breeding and wine-growing.

9. In order to complete the picture, reference must be made to the General Inspectors and the "Higher Agricultural Council". The General Inspectors are directly responsible to the Minister. There are 11 General Agricultural Inspectors each of whom is entrusted with the task of inspecting and co-ordinating the work in several Departments. They supervise all services of the Ministry of Agriculture with the exception of Forestry and Rural Engineering. These Inspectors are also specialists in some fields of agricultural production such as cereals, fertilisers, professional and social questions, dairy husbandry, oil-seeds, fruit production,

wine-growing and agricultural teaching. The part played by the General Inspectors in Advisory work is very important since they both co-ordinate and control the work of the different Agricultural Directorates in their area and contribute to the improvement of the technical knowledge of advisory officers through their specialist knowledge. The Higher Agricultural Council keeps the Minister informed of the progress of work, and tenders advice with regard to future agricultural activity. The Council is divided into 30 sections one of which deals with Agricultural Teaching and Popular Education and another with Propoganda and Advisory Work. Each section comprises officials and professional representatives. The Chairman of each section is usually a General Inspector of the Ministry of Agriculture.

10. Research, at the national level, is directed by the National Institute of Agricultural Research. This institution is entrusted with all research work for the improvement and development of agricultural production and for the preservation and processing of agricultural products. A Higher Council supervises its scientific activity and assists the Director of the Institute. The Minister of Agriculture is the Chairman of the Higher Council of the Institute and the members are representatives of the Ministries of Agriculture, Finance, Economic Affairs and Education together with representatives of Scientific Research Institutes, Universities and agricultural organisations. The Higher Council decides the national programme in agriculture. The Institute has six Research Centres which deal with Agricultural bio-climatology, agronomics, genetics and plant improvement, agricultural zoology, plant pathology, and agricultural technology for animal products. The establishment of five additional Research Centres is planned to deal with plant physiology, animal physiology, animal breeding and genetics, animal feeding and agricultural technology for plant products. All the existing Research Centres, with one exception, are located at the National Centre for Agricultural Research at Versailles. There are in addition five regional Centres co-operating with the Central Research Institute, they are located at Antibes, Bordeaux, Clermont-Ferrand, Colmar and Montpellier. Each of these regional Centres has seventeen specialised sub-stations. In addition to the regional Centres and their sub-stations there are thirty-four laboratories attached to the National Institute which also subsidise some thirty research stations and laboratories attached to the agricultural and veterinary Faculties of the Universities. All stations can carry out

experiments and the total staff at their disposal comprises 370 research workers and 60 clerical workers.

11. The Agricultural Production Directorate includes a Sub-Directorate for Education divided into three separate sections namely University education, District schools and Home Economics and Practice Centres. There are four Centres of University Education in agriculture; viz. The National Agricultural Institute in Paris and three National Agricultural schools at Grignon, Rennes and Montpellier. There is also a Horticultural College at Versailles. The course for the agricultural engineers employed in the advisory Service is of three years' duration, their training being completed by a course at the Higher School for Applied Agricultural Sciences. This is followed by a probationary period of approximately eighteen months. Seven regional schools deal with secondary education in agriculture providing a course of three years. Thirty-four practical schools provide a two-year course in practical agriculture. At a more elementary level the "winter schools" provide courses for young farmers. These schools are conducted during the winter months when there is less work to be done on the farms. There are at present 87 "winter schools" and 48 "itinerant" winter schools. The normal course provides training during the three or four winter months for two consecutive years. The students are taught by the engineers of the advisory service with the assistance of suitable local personnel. In the "itinerant" winter schools lessons are provided at least once a week for about five winter months over a two-year period. In some Departments the Advisory Services conduct correspondence courses.

12. In the French legislation provision is made for a compulsory post-elementary course for all children. In the case of farm youth this course provides scientific knowledge to be used as a basis for future advisory work. Lack of teaching personnel has prevented the extension of the post-elementary training to the whole of the country. At present there are 2,400 post-elementary schools located at permanent headquarters and 240 "itinerant" schools. There are 685 post-elementary schools for girls including "itinerant" schools. In addition to the Government schools there are 50 independent schools which are officially approved as Practice Centres besides a number of other non-controlled independent schools. Home-economics schools for girls are found in almost every Department. Because of their limited capacity only a small percentage of the farm girls attend these schools.

Finance

13. The amount of funds allotted to the Ministry of Agriculture in 1949 was approximately 25 thousand million francs out of a total budget of 879 thousand million. Of the 25 thousand million francs allotted to the Ministry of Agriculture, 264 million are made available for the Advisory Service and 193 million for research. Thus Research and Extension receive less than 2 % of the total budget of the Ministry of Agriculture and the latter Ministry receives less than 3 % of the total budget of the State. During the same year (1949) the National Revenue was estimated at 6,500 thousand million francs of which 23 % or 1,500 thousand million was derived from Agriculture. Notwithstanding this meagre and totally inadequate provision it is mooted that the budgetary allocation for agriculture may be reduced. This would be a retrograde step with very serious consequences.

Personnel

14. The advisory staff of the 90 Home Departments of France, is as follows:

A. — Technical Staff

	Number
Chief Engineer, in charge of Agricultural Services	90
Deputy Chief-Engineers of the Agricultural Services	90
Engineers working in the Agricultural Services	219
Total Technical Staff	399

B. — Administrative Staff

Heads of Administrative Sections	85
Heads of Statistical Sections	10
Administrative and Auxiliary Staff	451
Total Administrative Staff	546

The salaries of the advisory officiers are 20 to 30 % less than those of officials of the same grade in other external branches of the Ministry of Agriculture. The majority of the engineers in charge of the advisory service have a car at their disposal and receive travelling allowances.

15. Advisory officers are selected by means of a competitive examination from among the students who have qualified at one of the four agricultural colleges and completed their studies at the Higher School for Applied Agricultural Studies and served a

probationary period. The education of the advisory officers appears satifactory both from the scientific and practical points of view. Established advisers on the invitation of the Minister of Agriculture attend two meetings of the Directors of their Department each year. Their work is also inspected by the General Inspectors of their area.

Advisory Methods

16. Much time is spent by Advisory officers in France in teaching. Agricultural engineers give both theoretical and practical courses in special subjects. In some departments they also direct correspondence courses. Bulletins and leaflets are used in advisory work and provincial broadcasting station have a weekly agricultural broadcast in which the Directors of Agricultural Service give information of a general nature. Agricultural films are shown but to a limited degree due to lack of suitable films. The agricultural films available were produced by the Service de la Cinémathèque of the Ministry of Agriculture or by the advisory workers themselves. Some of the engineers are equipped with film apparatus and most of the departments have projection equipment. Experimental and demonstration plots are laid down by the advisers in some departments and also by the full-time agricultural teachers for post-primary agricultural courses. The farmers receive no subsidies for these demonstrations but they are compensated for part of the expenses involved. Contests in good farming methods and shows for breeding animals are held in some districts. Many of the present farm co-operatives were organised by the advisory workers and they are active at the present time in assisting the formation of breeding and milk-recording associations. Single practice demonstrations are frequently arranged on farms.

Programme and Programme Planning

17. The programme of the Agricultural Advisory Services is planned at the Ministry of Agriculture. The Directors of the Agricultural Service in the Departments spend about 50 % of their time on regulatory and administrative work. In the opinion of the Directors contact with administrative work is very useful in that it keeps them well informed of the agricultural conditions in the Department. The Directors are informed by the Ministry of the general framework of agricultural policy and of the orienta-

tion to be given to their Services at the two annual meetings in Paris. Circular-letters from the Ministry complete their instructions. In the opinion of the Visiting Team, however, there is no very definite plan or programme for advisory action at the Departmental level. Sufficient attention is not devoted to soil analysis as a measure toward forwarding efficient fertiliser practices, and also farm economies and efficient livestock feeding require greater emphasis.

Relationship of the Advisory Work to Research and Teaching

18. Contact between Agricultural Research and the advisory staff is provided at the national level, by the General Directorate for agricultural Production and by the General Inspectors. The number of Research Centres and specialists is very limited and contact between research centres and the advisory officers is largely a personal matter depending to a great extent on goodwill. This tends to unsatisfactory situations in some areas. Contacts between agricultural education institutes and Advisory Service are also unsatisfactory. The Ministry of Agriculture have attempted to achieve some co-ordination and the Agricultural Education Bureau has been made dependent on the Directorate for Agricultural Production (the Directorate which deals with advisory programmes). On the other hand, there is a very close co-operation between the advisory service and teaching in the local agricultural schools. These latter schools are much used by the advisers for demonstration and propaganda purposes. The Director of the Agricultural Services in each Department is ex-officio a member of the Council for the administration of the agricultural schools in his department, which schools comprise regional schools, practical schools, winter-schools, and post-primary schools. These schools have already been described. Their teachers assist the advisory officers with some field work, and the advisers reciprocate by giving some of the school lectures.

III. Evaluation and Suggestions for Further Development

19. (1) France, one of the largest and most important countries in Europe, has an agricultural industry of the most diverse type, due to climatic, edaphic and social conditions. In view of the possibilities offered for a much greater development of agriculture on economic lines, it is the opinion of the Visiting Team that a larger proportion of public funds than at present

allocated should be devoted to the development and expansion of this fundamental enterprise.

(2) There are several research institutions in France distributed throughout the country. The results obtained at these institutions do not reach the farmers as rapidly as is desirable. While serious attempts are being made by the research and college personnel to keep in close contact with the Advisory Services due to their intensive occupation with research work, efficient contact is not achieved. As in other countries, some specialist advisers serve as a link between the research institutes and colleges and the provincial advisory services. In France, however, there are only six specialists to cover the entire country. This means that in the field of grassland, for example, there is only one specialist despite the fact that grass lands comprise a very great area and play a vital part in French agricultural production. The Visiting Team recommends that groups of specialists be provided at regional headquarters to assist the field officers of the Advisory service.

(3) The technical staff in the agricultural services of France, consists of 90 Chief Engineers, 90 Deputy Chief Engineers and 219 Engineers. As there are 2,473,000 farms in the country each Engineer has to deal with an average of more than 6,000 farmers. In some Departments the number of farmers per engineer exceed 10,000. At the same time, the Technical Staff have to deal with a considerable amount of administrative and regulatory work and must devote much time to teaching in the agricultural schools. The staff for advisory work is obviously quite inadequate. In almost all the Departments visited by the team the lack of personnel was evident. Thus there is an urgent need for more workers in an advisory capacity. Should it be found difficult to provide sufficient qualified "engineers" to do the work, consideration should be given to the employment of advisory assistants. Such advisory assistants have been employed in other countries to do routine work and to assist in advisory fields where the problems are not too complicated. They are generally selected from the students of agricultural schools who have a thorough practical background and an aptitude for work.

(4) The Engineers of the Advisory Service appear to receive an adequate apprenticeship training. Following graduation from the College they are given a practical training for a period of eighteen months. There is, however, lack of inservice training and it is recommended that refresher courses on a comprehensive basis be organised for all advisory workers.

(5) The salaries of the Engineers in the Advisory Service, are about 20-30 % less than those of officials in other branches of the Ministry while their level of education is equally high. To maintain the quality of the advisory staff and to sustain morale it is essential that the advisory officers receive the same salaries as other civil servants at the same level. This is strongly recommended by the Visiting Team.

(6) Much constructive work is being done on current problems at the research centres. Advisory workers endeavour to keep the farmers abreast of these developments. There is, however, an urgent need for more research work in agricultural economics, farm management, marketing, farm building and farm machinery.

(7) Very little work appears to be done in farm economics by the Advisory Service, although Advisory officers have done excellent work in assisting farmers to establish co-operatives. At the present time there is need for far greater emphasis on the economics of production and farm marketing. It is recommended that the Advisory Service intensify work on these subjects.

(8) In the vine-growing districts successful co-operation is evident between the Advisory Service and farmers' representatives of the vine-growers' co-operatives. Co-operation between the Advisory Service and farmers' committees at the departmental and districts level should be initiated and extended throughout the country. Such co-operation would create more confidence on the part of farmers and build up a strong and efficient advisory programme. By this means farmers might be encouraged to raise additional funds for the support of advisory work.

(9) The importance of a properly organised an well directed information service for reaching rural people, is now recognised in most countries. In some regions of France, there is a weekly radio programme on agricultural subjects. This practice should, if possible, be extended to the whole country and more time should be devoted to agricultural subjects on the radio programmes. Visual aids, such as films, slides, pamphlets and leaflets should be utilised to a far greater extent by the Advisory Service.

(10) Home Economics work in France is largely restricted to education in domestic science schools for girls. Yet little provision is made for adult education in home economics throughout the country. It is recommended that the Ministry of Agriculture should give serious consideration to the provision of home economics sections in the advisory divisions.

(11) The efficiency of advisory work depends to a large extent on the level of education among farm youth. The Visiting Team recommended that educational services for farm youth in France be extended, giving particular attention to the provision of additional "writer schools" and "post-primary" courses.

V

GERMANY

Duration of visit: 12th March to 25th March, 1950.

Members of Visiting Team:

Mr. Th. Vendelbo ANDERSEN (Denmark), *Chairman*;
Mr. J. M. A. PENDERS (Netherlands), *Secretary*;
Mr. Alask LIDTVEIT (Norway),
Mr. Paul E. MILLER (United States), *E.C.A.*

1. During the course of its visit to Germany the team had opportunity to discuss and consult on all matters pertinent to the survey with representatives of the Ministry of Agriculture and officials in charge of advisory work in several of the Länder. During the field trips some 1,500 miles were covered, visits being paid to the American, British and French Zones. Advisory work was discussed with local advisory staffs, farmers, the staffs of some research centres and the officials of agricultural schools. The problems of farmers, the types of farms and their relation to advisory work were thus observed in different sections.

I. Introduction

2. It is important that any analysis of the existing Advisory Organisation in the Federal Republic of Germany or suggestions for its improvement be related to present conditions that affect agricultural production and rural living in that country. These include the physical resources of the country, the social conditions of its farming population and the status of its rural institutions. The following brief summary of the agricultural resources of the Republic are therefore appropriate to an understanding of the latter sections of this Report.

Background of Advisory Work in Germany

3. The population of Western Germany, including Berlin, is approximately 50 million people, of which 16 per cent are classified as rural population. In 1946 the population engaged in agriculture was estimated at 8.1 million. The total land resources, including inland water, are approximately 24 million hectares, of which 12.4 million hectares are classified as agricultural land, 7 million hectares as forest land and 2.8 million hectares as other land unsuitable for agriculture. Of the total agricultural land area there are 8.3 million hectares of arable land and approximately 5.5 million hectares of permanent grassland. In the northern part of the country there are large areas of low-level land much of which is not adequately drained. The southern part of the country is more mountainous with a much larger proportion of the land given over to forestry. The rainfall varies greatly from 1,400 millimetres in the southern part of Germany to 560 millimetres or less in Nothern Germany. The growing season varies from 150 to 200 days.

4. There are in excess of 2 million farms in Western Germany. Of these 345 thousand are of less than one hectare in size, 869 thousand between 1 and 5 hectares, 410 thousand between 5 and 10 hectares, 250 thousand between 10 and 20 hectares, 114 thousand between 20 and 50 hectares and 17 thousand above 50 hectares. Of the total number of farms 80 per cent are of less than 10 hectares in size. The larger farms are in the northern Länder and the greatest concentration of small farms is in the southern Länder. Farmers generally own their holdings. In Southern Germany the problem of small farms is further aggravated by the fragmentation of the land holdings resulting from the land tenure laws. It is not unusual for a small farm of 5 to 7 hectares to be divided into 50 or 75 widely scattered parcels. This situation creates numerous problems affecting all agencies engaged in agricultural work.

5. In pre-war times Western Germany produced 65 per cent of its own food requirements and imported the remainder largely from Eastern Germany. The cessation of the latter food imports from Eastern Germany after the last war has created a serious problem: a problem which has been aggravated by an increase in the population of Western Germany by some 8 million refugees. In 1949 there were 2.4 million hectares planted to breadgrain, or 0.4 million less than pre-war. The coarse grain area

was 1.8 million hectares or about 0.7 million less than pre-war. There is little difference between the area under potatoes at present and in pre-war days, but the acreages under pulses, sugarbeets, oilseeds and root crops are somewhat higher. During the war, and for the first 2 or 3 years after the war the yield per hectare continued to decrease much, largely due to the scarcity of fertilisers and to unfavourable weather conditions. In 1949 the number of horses was 5 per cent above the pre-war number, sheep had increased by 19 per cent and goats by 9 per cent. On the other hand, the total number of cattle, pigs and poultry, are lower than in pre-war times by 10.5 per cent, 29 per cent and 23 per cent. The Agricultural Investment is 20 milliards DM of which 9 milliards are for soils, 6.8 milliards for buildings and 4.2 milliards for livestock and machinery. The buying and selling co-operatives are well organised and membership includes a large percentage of the farmers. There is a farmers' organisation which confines its activities largely to matters of Agricultural Policy. Neither the co-operatives nor the farmers' organisations engage in advisory work.

6. The overall education of the rural population of Western Germany is rather high. In general there is little difference between the education facilities available to the rural and to the urban populations. The facilities available in 1949 for agricultural education included 51,597 apprenticeships, 503 agricultural schools (winter schools), 374 girls' sections in agricultural schools, 14 higher agricultural schools, 38 country women's schools and 6 agricultural colleges. The total number of pupils in attendance at the agricultural winter schools was 20,175: 1,080 were enrolled pupils in the higher agricultural schools and 2,196 students attended the agricultural colleges. Attending girls' sections in the agricultural schools there were 8,628 pupils and in the country women's schools 1,358 pupils. The percentage of farmers who have attended an agricultural school varies from State to State, but is generally rather high—in some States the figure is as high as 50—60 per cent.

Aims and Scope of present Advisory Work

7. It is estimated that about one-third of all the farmers in Western Germany are contacted directly by the Advisory Service. Since the activities are directed towards farms of 5 hectares and more, the coverage for these farms is greater than the overall figure would indicate. There are at present 94 advisers on Home Economics. Outside the work in the schools, little work of an

advisory character is being done with farm youth. The major emphasis of Advisory Work is directed towards the solution of farmers' production problems, and it is expected that the pre-war food production level (65 per cent of food requirements) will be reached in 1950. In the present circumstances, it is essential that food imports be reduced to a minimum. For these reasons Agricultural Policy and in turn Advisory Policy has been directed towards increasing agricultural production as quickly as possible. It is also necessary to reduce the cost of production in order to provide food as cheaply as possible to the consuming public whose purchasing power is limited. At the same time farmers are handicapped, especially those on small units, because of lack of funds to increase output. High taxes are also a problem of concern to all farmers. At the present time taxes amount to 100 DM or more per hectare and in some instances represent 15 per cent of the gross income of the farm.

II. Present Advisory System

Organisation of the Advisory Service at all levels

8. At the Federal level Advisory Work is one of the responsibilities of the Chief of Food, Agriculture and Forestry of the Ministry of Agriculture. No advisory staff of consequence is maintained at the national offices, the work being delegated to the *Länder* and there made the responsibility of the Minister of Agriculture for each *Land*. In 5 of the 9 *Länder* the Minister of Agriculture for the *Land* has delegated the responsibility for Advisory Work to the Chamber of Agriculture. In the remaining 4 *Länder* there is no official Chamber of Agriculture. In these *Länder* an officer responsible to the Minister of Agriculture for the *Land* is in charge of the Advisory Work. To fully understand the Advisory Organisation in Western Germany, a brief statement is necessary in regard to the Chambers of Agriculture and the Agricultural Schools or Winter Schools as they are commonly called. These two institutions have played an important part in the rural life of Western Germany over a long period of years. The Advisory Organisation with few exceptions is an integral part of both the Chambers of Agriculture and the Agricultural Schools.

9. The Chambers of Agriculture date back to the time of Bismarck and are the result of a demand on the part of farmers

for greater participation in the development of programmes and policies affecting farm people. The Chambers are semi-public bodies, supported to a minor degree by a tax on agricultural lands, but they receive the majority of their funds from the Federal Ministry. They are managed by an executive officer who is appointed by the Chamber of Agriculture and approved by the Minister of Agriculture for the *Land*. Several sections, each in charge of a director and staff, transact the work of the Chamber. Sections include Advisory Work, Agricultural Schools, Animal Husbandry, Agronomy, Plant Protection, Horticulture, Farm Mechanisation, and others. In some instances the direction of the Agricultural Schools and Advisory Work is combined under one Director. The operating staffs for the several sections include substantial field organisations which work in the several *Kreises* [1]—in educational and regulatory activities. Farmer participation in the Chamber activities is provided for through a farmers' Board of Directors representing all *Kreises* with appropriate sub-committees. The Board of Directors and their sub-committees review the work of the operating staff, recommend appointments, and in general serve in the usual capacity of a Board of Directors. Board members are elected in democratic fashion by the farmers and farm workers. It should be pointed out that the Minister of Agriculture has a veto power over the actions of the Chamber through his authority to withhold funds. Essentially the Chambers are educational organisations, but they have at times been engaged in considerable regulatory and enforcement work. They do not engage in matters pertaining to governmental food control.

10. The agricultural schools are local Kreis institutions, of which there are 503. Each school is in charge of a Director with a teaching staff of three or more people. There are Home Economics departments in 373 of the 503 schools. The average attendance is from 50 to 75 students. The school course covers two years divided into two terms of 5 months each, from November through March for the boys, and a longer course of one winter term for the girls. During the seven months when school is not in session the teaching staff is engaged in Advisory Work and especially on farm practice work with the students. The Agricultural School is designed to be the Community Agricultural Centre in the Kreis, since the teachers are employed on a

[1] *Kreis:* refers to a local political division of the *Land* corresponding to a county.

12 months basis and their duties include both classroom teaching and general Advisory Work. Farmers are very strong in their support of these schools, and additional ones are being planned. While the School Directors are given considerable freedom in the management of the schools and in their allied advisory activities, they are administratively responsible to the Directors of the Agricultural School Sections of the Chambers of Agriculture, or to the Ministers of Agriculture in *Länder* where there are no Chambers of Agriculture.

11. Traditionally Advisory Work, which in various forms has been conducted in Germany for nearly 100 years, has been closely associated with the Chambers of Agriculture and the Agricultural Schools. The Director of the Agricultural School is also Director of Advisory Work in the *Kreis*. He is responsible to the Director of Agricultural Schools in the Chamber and also to the Director of Advisory Service in those Chambers having an Advisory Director. One or more full-time advisers are now employed in each *Kreis* as well as the staff of the Agricultural School which is available for general full-time Advisory Work for 7 months of the year when school is not in session.

12. The above organisation is in effect in 5 of the 9 *Länder* of Western Germany. In the other 4 *Länder* the organisation varies somewhat. In Bavaria the Advisory Work is under the direction of the Minister of Agriculture of Bavaria. In some 7 *Kreises* in Bavaria a so-called "enlarged" Advisory Service is being developed on an experimental basis. Here local community committees have been elected by farmers which committees in turn elect one representative to a *Kreis* Committee. This latter Committee formulates the programme for Advisory Work in the *Kreis* and the Advisory agents work in close association with both the *Kreis* and the local committees. The advisers are, however, officially responsible to the Director of these Schools and through them to the Minister of Agriculture for the *Land*. The aim of this committee organisation is to encourage the planning of Advisory programmes and to develop local leadership and community responsibility for all of the Advisory activities.

13. A further variation from the more general form of organisation is found in Würtemberg and Hesse where an expanded Advisory Service is being set up quite independent of the Agricultural Schools. In Würtemberg, this expanded Advisory service works in close co-operation with the Agricultural

College at Hohenheim. In a number of *Kreises* in Northern Germany the Advisory Service has also been greatly expanded. In these *Kreises* one adviser is employed to work intensively with from 35 to 50 farmers on individual farm planning and farm management. The farmers participating in this group, or *ring* as it is called, pay a limited share of the cost. The *ring* adviser is expected to carry out group Advisory Work outside of his particular *ring*.

14. There is no specialist staff in any of the *Länder* that is officially responsible solely to the Director of Advisory Work. This is true of the *Länder* that have Chambers of Agriculture as well as those where the Advisory Work is the responsibility of the Minister of Agriculture. The field staffs of the several sections of the Chambers of Agriculture—or the Minister of Agriculture as the case may be—comprise a substantial number of specialised personnel responsible for the plant protection service, the numerous cattle breeding activities including milk recording, and the other services at the *Land* level. They also devote much time to specialised Advisory Work and may be called upon by the general Advisory Service for assistance.

Relationship of the Advisory Work to Research and Teaching

15. The administrative relationship between Advisory Work and the teaching in the Agricultural Schools is closely co-ordinated since both Teaching and Advisory Services are under the Directors of the Agricultural Schools. This relationship exists except in one or two *Länder* where the enlarged Advisory Service and Advisory *Rings* are independent of the schools. There is little or no administrative connection between the research institutions and the Advisory Service. Likewise there is no official relationship between the Advisory Services and the colleges. There are several research stations working more or less independently of each other with limited facilities to publish their results. There are no planned procedures to channel the problems of the farmers to the Research Centres nor the scientific results obtained at such Centres to the farming population.

PERSONNEL

16. The Advisory staff employed in Western Germany at present comprises:

Full time advisers with University degrees in agriculture . . .	1,700
Full time advisers without degrees in agriculture	610
Full time women advisers in Home Economics	94
Directors and teachers at the agricultural winter schools who are also part time advisers, all with University degrees. . . .	2,207
Women teachers and part time advisers	799
Total full time and part time advisory staff . .	5,410

The total number of Advisers is now 30 per cent higher than in 1938.

The directors and teachers at the Agricultural Schools are appointed by the Chambers of Agriculture, or in the case where there is no official Chamber, by the Minister of Agriculture of the *Land*. The full time advisers are also appointed on the recommendation of the Director of the school by the Chamber or the Minister. Teachers at the Agricultural Schools must have received their training at a University or an agricultural college. Full time advisers are either university graduates or have completed the course at the higher agricultural schools. Teachers in the Agricultural Schools are required to take 2 years of special training following graduation from the University or agricultural college. These two years consist of training in teaching methods and teaching practice as assistant teacher before they are qualified for an appointment as a teacher in an Agricultural School. Full time Advisory workers at the present time are not required to have these two additional years of training. 87 per cent of the total staff employed as advisers and teachers and 75 per cent of the full time advisers are holders of University degrees. The salaries of advisers are determined by the Chambers of Agriculture or the Ministry of each *Land*. The Federal Government is now in the process of unifying these salaries in all *Länder*. When this unification is completed it is expected that the average salaries for advisers will be 600 DM and 450 DM per month for degreed or non-degreed personnel respectively. This will be on the same level as other civil service employees considered of comparable grade by the German administration. Full time advisers are paid less than teachers in Agricultural Schools and at present they have no pension on retirement. The directors of the schools and one or more teachers in each school have permanent civil service status and are eligible for pension when they retire.

Programme and Programme Planning

17. Until the end of 1949 the Food and Agriculture Divisions of the Occupation Forces had a major influence on the Advisory programme. Now the programme is developed by the Federal Ministry of Food and Agriculture in co-operation with the Ministers of Food and Agriculture in the *Länder*. The minister of the *Länder* extends this programme either through the Chambers of Agriculture where they are officially established or through their own agencies as in the American Zone and a part of the French Zone. At the *Kreis* level it becomes the responsibility of the Directors of the Winter Schools. In some *Länder* committees have been formed consisting of representatives of the State Agricultural administration, the Chambers of Agriculture, the Agricultural and Home Economics vocational associations and the colleges. The function of this committee is to determine the programme. The corresponding *Kreis* committees are formed by representatives of practical farmers, country women, country youth, co-operatives and agricultural vocational associations. The chairman is a practical farmer. There is a similar organisation at lower levels in district and *ring* communities. There is no official connection between the Advisory Service and the Farmers' organisation in Western Germany.

Advisory Methods

18. The individual farm visit is the most important method of teaching employed by both Agricultural and Home Economics Advisers in Germany. Advisers also use the group teaching method to extend the benefits of the Advisory Service to more farm people than can be reached individually. Both methods are used effectively. Much valuable work is being done by advisers on farm management, farm accounting and better grouping of enterprises to reduce costs and increase the farmers' net income. This is especially true in those sections where the *ring* system is being developed. Much emphasis is also placed on the demonstration methods of teaching. Farmers receive no subsidies for demonstrations. Many of the farms in the Advisory *ring* are used for demonstration purposes. Projection equipment is used by advisers to a limited extent, but graphs and charts are used extensively. The Agricultural Schools and the *Länder* Ministries

issue a limited number of leaflets on agricultural subjects, but supplies are not adequate for general distribution. Radio and newspapers are also used to present current agricultural information.

19. The Federal Ministry of Agiculture, has just established at the Federal level a special division, called the Federal Evaluation and Information Services for Agriculture and Home Economics. This Division has three sections:

(*a*) A section for research in advisory methods and advisory aids as applied in agriculture and home economics advisory work. This Section will make evaluation studies on the results of Advisory Work. Special attention will be given to the methods most applicable to the solution of small holders' problems.

(*b*) A second section to provide information on the results of research in Germany and in other countries to the Ministries and Chambers of Agriculture of the different *Länder*, the colleges, research institutes, directors of schools, teachers and advisers.

(*c*) An information service on the marketing of agricultural products.

20. The Federal Ministry is also planning the establishment of a "Council for Advisory Service" on the Federal level, composed of representatives of the Unions of Farmers, Farm Women, Chambers of Agriculture, Co-operatives and Research Institutes, which will act as an Advisory Committee to the Federal Ministry of Agriculture, with particular regard to the Advisory Service.

In-service Training

21. Adequate provision is not made for Refresher Courses for Advisory Workers. The staff of the six main Agricultural Colleges, together with some recently erected institutes, are however doing some work in this field. At the Grassland Institute of Wehrda it is planned to give once every two years a five-day Refresher Course in grassland husbandry to all advisers in Land Hessen. In Ranischgolzhausen near Marburg, an institute was established in 1948 for training advisory workers. This is a four-week course. No contact was had with this institute and the number of advisers who have received this training was not determined.

FINANCING

22. Of the total State budget for Western Germany of about 18 milliards DM, approximately 400 million DM are spent for agriculture as a whole and about 20 million DM for the Advisory Service, not including the Agricultural Schools. In 1949 the proceeds of agriculture amounted to approximately 6 milliards DM while the national income was about 58 milliards DM. The best estimate the visiting Group could obtain of the financial assistance required at the Federal level for an adequate Advisory system for Western Germany was 50-60 million DM. This would be the approximate average value of the food imports for a five-day period at the present time. The *Länder* receive from 1/10th to 1/3rd of the total expenditure on Advisory Work from the Federal Government. Thus the total expenditure on Advisory Work in the *Länder* depends on the availability of financial support from the Land itself. Budget allocations for Advisory Work and Agricultural Schools at the *Land* Level are included under one heading. The expenditure in each *Land* on Advisory Work and on the Agricultural Schools is not separated.

III. Evaluation and Suggestions for Further Development

23. (1) The visiting team had the opportunity to observe the work of the numerous agricultural schools in Germany. These schools appear to have made a large contribution to German agriculture and are among the most important institutions affecting the life of the rural population. It was logical that Advisory Work should go hand in hand with the Agricultural School organisation because of its close relationship with farm people. The team does not recommend at this time any drastic change in this type of organisation. It must be emphasised, however, that the director of the school who is also director of the Advisory Service should fully appreciate the responsibility of his position and be capable of giving leadership to both types of educational work. New appointments for men to fill these positions should be made from the ranks of well-trained experienced advisory people. With this type of leadership Germany has an unusual opportunity to build an expanded Advisory Service that should be productive of large results.

In some parts of Northern Germany the full time Advisory Service is being developed independent of the schools. It is recommended that this experiment be carefully observed, and

the results obtained compared with those in the *Länder* where the Advisory Service is under the direction of the school.

(2) As the number of Advisory people is substantially increased there is an urgent need for closer co-ordination between the Advisory Service and the research institutions. The statement was made by an eminent research administrator that agricultural practice in Germany is 30 years behind the research knowledge now available. If this is true it indicates a need for a more effective co-ordination of research and Advisory Work. An excellent example of co-ordination was observed at the Institute for Grassland Economy at Wehrda, where the research workers at the institute were devoting much time to the training of advisory workers. Similar relationships are needed with all institutions doing agricultural research. Only in this way can public expenditure for research realise its full value. Since there are no specialists attached to the Advisory Service at the present time a close relationship between the Advisory Service and Research is highly desirable if the Advisers are to be kept informed on current research. It would also provide a channel by which farmers' problems would be brought to the attention of research workers.

(3) While there are overall objectives for the Advisory Service the visiting team is trongly of the opinion that the Advisory programmes would benefit considerably form greater farmer participation in programme planning and building. Programmes which originate in the *Kreises* through joint discussion by farmers and advisory people and are then consolidated at the *Kreis* level and later at the *Land* level will be more effective than those developed at higher levels of administration and passed on down to the *Kreis* and to the local communities.

(4) As the scope of the Advisory service is increased and funds for its support are similarly increased, there is need for a service which will study:

(*a*) The methods being used by advisory workers;
(*b*) The kind of training needed for advisory work, and
(*c*) The results obtained.

The survey team recommends that a small section of highly trained specialists in advisory methods, training and evaluation be established on the Federal level, under the Federal Ministry of Agriculture. This Section, which should be responsible to the director of Advisory Work would, as its task, initiate studies as above outlined.

(5) Germany is to be commended for the beginning which has been made in Advisory Work with farm women. During

the visit the members of the team were impressed with the ability and vision of some of the women workers and of some of the methods now being used, especially the travelling or "ambulatory" domestic science schools. Because of the important place which farm women occupy in German agriculture as rural home life this type of Advisory Work should be expanded as rapidly as possible and given the full support of the Ministry both on the Federal and *Länder* level.

(6) The team had the opportunity to observe the development of Advisory Work in a few *Kreises* in Bavaria. The important difference between the Advisory Organisation in Bavaria and elsewhere throughout the country is that there is no Chamber of Agriculture. Hence, the programme is being developed through community and *Kreis* committees which are taking responsibility for the work and thus developing local leadership. It is an experiment in the democratic processes of training farm people to assume more responsibility for the success of the advisory programme. It is axiomatic that the more responsibility people assume for any programme the more interest they will have in making use of the services and ensuring its success. It is recommended that Bavaria be given support in continuing this experiment and demonstration.

(7) The team understands that the Ministry has plans for making available sufficient advisory staff at the *Kreis* level. In some *Kreises* there are already an ample number of workers. In such cases it is a question of fully utilising the manpower available rather than increasing numbers. Here again the problem is one of co-ordination, supervision, adequate training and facilities.

(8) A large number of agricultural officials who are described as "specialists" are not under the direction and supervision of the Director of Advisory Work at any level of administration. It would appear that the work of these officials would be better co-ordinated with the work of the advisers if they were under the same administrative direction. They would however need to be relieved of regulatory and enforcement work and these activities placed under a separate section in the Ministry. It is believed that such an arrangement would not increase the number of workers required, but on the other hand should make it possible to reduce the size of this group through better co-ordination of their activities. Lack of time did not allow the visiting team to make a thorough examination of this problem, and it is suggested that it be made a subject of further study by the Ministry of Agriculture and the Chamber officials.

(9) There is only one major farm organisation in the

Republic which is said to have a majority of the farmers included in its membership. It does not engage in technical Advisory Work and its programme deals largely with agricultural policy. This division of activities between the farm organisation and the established services for conducting Advisory Work appears to be highly satisfactory.

(10) The solution of the problem relating to the small farms is of primary importance to the further development of German agriculture. A study of effective Advisory methods in dealing with these small farms needs special consideration, since they represent such a large proportion of the total number of farmers and approximately one-third of the agricultural area.

(11) At the present time the training required for the position of Adviser is not on a comparable basis with that required for teachers in the agricultural schools. The provision of an equivalent standard of training for advisers and teachers, together with equivalent retirement provisions and pension rights is very strongly recommended by the visiting team. By doing so it would be possible to employ Advisers as teachers or vice-versa as desirable. It will also make it possible for members of the Advisory Service to be promoted to the position of Director of the Agricultural School and Advisory Work in the *Kreis*. The Ministry is to be commended for its recent policy of establishing salary scales for Advisers on a more satisfactory basis, but at the present time it is understood that Advisers do not have retirement rights or pensions. As rapidly as possible these privileges should be extended to the members of the Advisory Service.

(12) The Federal Ministry is to be commended for the substantial increase in public funds being made available in the 1950 Budget for Advisory Work. Its action indicates an endorsement of educational programmes directed towards the increasing agricultural production and improving the social conditions of the people living on the land. With strong, well-directed leadership the Advisory Service now being established in Germany should go far in realising these objectives.

VI

GREECE

Duration of visit: 13th February to 23rd February, 1950.

Members of Visiting Team:
Mr. J. M. A. PENDERS, (Netherlands), *Chairman*;
Mr. G. R. YTTERBORN (Sweden), *Secretary*;
Mr. F. DE VILHENA (Portugal);
Mr. A. L. DEERING (United States), *E.C.A.*

1. The team visiting Greece conferred with the Minister of Agriculture, the Director General of Agriculture, the heads of several divisions in the Ministry and other Governmental officials. Every help and assistance was accorded and much data provided relating to the background of the study. Four areas were visited including the districts in the neighbourhood of Athens, Corinth, Salonica, and the Island of Crete. Visits were made to the artificial insemination centre in each region, and to several research institutions in each area. Opportunity was provided to confer with school authorities, with the Director of the National Agriculture Bank, with the Director of the Federation of Farmers, with the E.C.A. Mission, with Advisory personnel, farmers and others.

I. Introduction

2. The area of Greece is 50,133 square miles. Approximately three-quarters of the total area of the country is mountainous and the only extensive flat country comprises the plains of Thessaly in central Greece and the Axions (Verder) and Stryman (Struma) Plains in Macedonia. The economy of Greece is based to a great extent on agriculture. In 1947 agriculture provided 36 % of the value of national production. Moreover, agricultural products constituted 85 % of the total exports in the same year. At the same time by far the greater part of the basic foodstuffs required

to meet the needs of the population had to be imported since, due to climatic and soil conditions, home production in agriculture largely consists of arboricultural and viticultural products and tobacco. The total area of cultivated land amounts to 3.4 million hectares. The average size of farms is approximately 3 hectares and there are very few farms of more than 50 hectares in area. In the northern part of the country winter cereals, especially wheat, predominate. On the islands and in the south, olives, grapes and citrus fruit are the main crops. Tobacco and cotton are important agricultural products, tobacco being one of the principal exports. Dairy production is relatively unimportant, the production of meat being of greater significance. In general, agricultural methods are rather primitive, as in all countries of the Near and Middle East. More recently, threshing and binding machines and other agricultural machinery have been introduced in the lowlands but more ancient methods still persist in many parts of the country. The level of agricultural production is on the whole rather low. The average yield per hectare of wheat and corn is 1,000 kgs and for other cereals about 700 kgs. The average annual production of milk per cow is less than 700 kgs for native breeds. Imported breeds have produced up to 2,700 kgs per year. The low yield per hectare is partly due to the limited use of fertilisers and partly to the arid climate and the impoverished soil in many parts of the country. Soil erosion is a serious problem in many parts particularly in the territory of Macedonia. Soil erosion and lack of adequate irrigation systems are two of the major factors which limit production.

3. There are co-operatives in almost every village yet most of the products appear to be marketed privately. Raisins, cotton and tobacco, however, are marketed through the co-operatives to a large extent. The village co-operatives are affiliated to farm unions covering large districts, and these unions are joined together on a national level in the Confederation of Unions of Agricultural Co-operatives. Short term credit from the State Agricultural Bank is arranged through the co-operatives. The funds available through the State Agricultural Bank are insufficient and the interest is unduly high. The interest rate for long and medium-term loans is 8.5 % and that for short-term loans 10.5 %. Investments in agriculture have seriously declined since the war.

4. Over-population creates a serious problem in Greece. The density of rural population is 157 persons per square kilometre

of arable land. This is among the highest in Europe and is the cause of a permanent surplus of farm labour, estimated at 50 %. To aggravate matters, industry is poorly developed. Greece has suffered greatly through the ravages of war and the destructive operations of guerilla bands since that time. Some of the greatest damage was done in farming areas, and particularly in the area devoted to wheat growing. The families of the war-stricken farmers are estimated to be 300,000 in number, and the families of the guerilla-stricken group comprise about half this number. Large sums of money are being spent by the State for the relief of farmers. The settlement of 300,000 refugees from Turkey in Greece in 1922 has provided a big problem to the advisory service and retarded advance in agricultural development since that time. The general educational level is rather low. In theory, public elementary education is compulsory for six years, but in practice attendance of children at the elementary schools is unsatisfactory. School facilities are also inadequate. Advisory work in Greece was first initiated in 1897 when three agricultural stations were established. No significant advances were made until 1911, when the legislature ordained that an agriculturist should be provided in each Prefecture for advisory work.

Aims and Scope of Present Advisory Work

5. The objects of the advisory service are to educate the farmers in technical matters relating to agriculture; to disseminate the results of research work and improved practices among farmers in order to raise agricultural production, and farming efficiency; and to raise the educational level of farm youth.

II. Present Advisory Service

6. At the present time there is no special division in the Ministry of Agriculture responsible for advisory work, though it is understood that such a division is contemplated. There are three General Directors in the Ministry—one for general agriculture, one for construction and settlement, and one for forestry. There are seven divisions in the Direction of General Agriculture, one of which deals with research and agricultural education. There are ten regional Inspectors of Agriculture. The country is divided for administrative purposes into 52 Prefectures. In each Prefecture (Nomoi) there is a Director of Agriculture with three assistants in charge of general agricultural questions, one

for plant pathology and pest control, and one for land distribution and settlement. The Director of each Prefecture is responsible to the Ministry of Agriculture, to the Regional Inspector and to the Regional Director of Agriculture, for his area. In each Prefecture there are two or three counties (esparchies) and in each county there is an agriculturist. The number of advisers in a county varies, depending to a large extent on the number of villages in the county. In all there are 94 county agriculturists and approximately 400 local district advisers. On the average each district adviser serves from ten to fifteen villages with a total of more than 2,000 farm families. A non-governmental advisory service is provided by the Agricultural Bank to farmers. The team was given to understand that this service is a rather comprehensive one, its field staff comprising 250 agriculturists. These officers have mainly the task of advising the Bank on the economy of projects for which loans are requested.

Agricultural Education

7. There are two agricultural colleges, one at Athens under the Minister of Agriculture and the second at Salonika. The college at Salonika is part of the University of Salonika and is under the direction of the Minister of Education. Each college has a farm attached at which the students get a full year's practical training during their course of five years. There are 14 agricultural secondary schools where pupils get one or two years' training in general farming, cheese-making, fruit-growing and viticulture. In 1946, provision was made for primary general education for farm boys. Additional education is provided in the Greek language and arithmetic, while vocational agricultural training is given by local agriculturists, who are specially trained and selected for this work. At present 26 local agriculturists are engaged in this work in about 100 villages where they provide short winter courses in agriculture and allied subjects. Itinerant schools used by the Greek advisory service for many years have recently been adapted for the purpose of providing training on farm machinery. During the past year 157 of these itinerant schools gave courses in pruning olive trees; 49 schools gave courses in grafting fruit trees; 13 schools gave courses in pruning citrus trees and 11 gave instruction in cheese-making. The Near-East Foundation, in 1949, initiated advisory work on home economics. Subsequently the Ministry of Agriculture, in co-operation with the Near-East Foundation, the local E.C.A. Mission

and the co-operatives conducted a trial with rural communities in developing an advisory programme in home-making. Teachers in home economics are at present trained at the Charakopeion School for Home Economics.

Research

8. Several independent institutes deal with research work. These include the Plant Improvement Institute at Salonika, the Cotton Institute at Salonika, the Laboratory of Sericulture, the Soil Laboratory, the Research Laboratory for the Preservation and Storage of Fruits, the Tobacco Institute, the Raisin Institute, the Vine Institute, the Institute of Plant Pathology and the Kanellopoulos Institute. The research results obtained are passed to the advisory service by the institutions themselves or by the Ministry of Agriculture. In some experiments, as those relating to seed production and the control of pests and diseases, research institutes work with the field Services, and participate in and administer certain phases of the programme. Special bulletins and publications are issued by Research Institutes and by the Division of Research of the Ministry.

Financing

9. The Advisory Service is financed partly from the Government budget and partly from special taxation on certain farm and forestry products. Salaries of field personnel who are Government employees are paid by the Government. Their travelling and incidental expenses are met from the local fund. In general it would appear that the funds available for advisory work are inadequate. The Government budget for the fiscal year 1949-1950 was approximately 5,750 milliards drachmen, and of this approximately 250 milliards drachmen was for the Ministry of Agriculture. The total funds allocated for advisory work and for operating local stations and nurseries amounted to about 60 milliards drachmen. This sum was made up of 10 milliards drachmen from local funds, 40 milliards drachmen from the Ministry of Agriculture and 10 milliards drachmen from E.C.A. Funds.

Personnel

10. The agriculturists of the Field Services are College graduates as a rule with a B. Sc. degree who have completed a five year course at the Agricultural College in Athens, or the Agricultural course of the University at Salonika. Some, how-

ever, have received a lower standard of training at Secondary Agricultural Schools. The number of non-degree personnel has increased since 1920 due to the pressing need for field workers in connection with the land distribution and settlement projects. Those men are at present working as county or district advisers. They cannot be promoted to Directors of Agricultural Services unless they complete their training at one of the two agricultural colleges. Recently in co-operation with the E.C.A. Mission for Greece and the Near-East Foundation some agriculturists were given training in advisory methods and the principles of vocational education. A chair for Agricultural Education and advisory work has been established at the College in Athens and a similar chair is planed for the college at Salonika. Twenty-six carefully selected district advisers have received special training for vocational work with farm boys. In-service training of advisory officers has been initiated, which includes short courses and field studies. The salaries of the advisory workers appear to be comparable with those received by other government officials. Their salary scale is 50 % higher than administrative personnel of the same grade.

Advisory Methods

11. In the early days of the advisory service, lectures of an academic nature were given by agriculturists in the villages. Such lectures were not in the main based on a thorough knowledge of local conditions. Consequently the farmers soon lost interest in the work. Some of the more successful agriculturists engaged the farmers in discussions on topics of local interest. This discussion method is still used effectively in the villages of Greece. Meetings are found effective in reaching a large number of farmers and are much utilised especially where community action is desirable on local problems. They were also found very helpful in analysing the results of local field tests and in demonstrations. The farmers live concentrated in the villages where the agriculturists can easily meet them at home or in the village square. Farm walks are difficult owing to the fragmented nature of the holdings. Demonstration plots are used in connection with fertilisers tests, improved varieties of cereals, leguminous crops in rotation, the drafting and pruning of trees, and controlling weeds and pests. Demonstration farms are difficult to arrange in Greece, where the small farms are frequently scattered in as many as 20 or 30 parcels often long distances from each other. In 1934 the Near-East Foundation conducted demon-

stration work with 54 Macedonian villages. In these villages farmers' committees, comprising progressive farmers, were organised to assist the local agriculturist to develop and carry out the advisory programme in a practical and efficient manner. The committees proved to be very successful and, as a result, the Ministry of Agriculture has requested the advisory service to organise more of these Farmers' Committees. Printed matter is not used extensively by the advisory service, since farmers do not read to any great extent because of their limited schooling. Approximately 20 % of the people are illiterate. Circulars and posters and articles in local papers are used to some extent. The radio is not used by the advisory service. Film apparatus has been distributed to each of the 10 Inspectors and projectors have been allocated to each of the 52 Directors of Agriculture of the Prefectures. The absence of electricity, except in some of the larger villages, presents some difficulty in developing an extensive use of films. The lecture method is used generally, particularly for short courses for young farmers. Advisory work in Home Economics has been successfully initiated through the co-operation of the Minister of Agriculture, the E.C.A. Mission, the Near East Foundation and Farmers' Co-operatives. The study team had the opportunity to see and observe the interest of women in courses on the preservation of food , on the vaccination of poultry against Newcastle Disease, and in soap-making. A further important aspect of the work is in connection with the children's clinics.

Programme and Programme Planning

12. A great part of the time of the limited advisory personnel employed is very fully occupied in administrative and regulatory work together with duties in connection with refugees and guerilla-stricken farmers. For these reasons it is difficult for the service to find time to develop and carry through a definite and well planned advisory programme. Day-to-day duties have so fully occupied their attention that little time has been devoted to developing a well thought out advisory programme on the national regional and local levels. A Committee on Education and advisory work, with the Director General of Agriculture as Chairman, was appointed by the Minister of Agriculture in October 1947, to work in co-operation with the local E.C.A. Mission. Three sub-committees of this committee have been active in promoting a broad programme of educational and advisory activities. The recommendations of these sub-committees have proved

constructive and include suggestions for the strengthening of the programme through centralised responsibility for supervision, and the provision of co-ordination and training for advisory workers.

Research Relationships

13. The present duties of the advisory agriculturists include the conducting of research and experimental work. Research work is, however, carried on very largely under the Ministry of Agriculture (Division of Research), by the Superior School of Agriculture at Athens, by the College of Agriculture at Salonika and by the Research Institutions established in co-operation with commodity associations for wine, currants and tobacco. The research work at the College of Agriculture at Salonika and certain other research agencies does not come under the direction of the Ministry of Agriculture. The co-operation of these research groups with the advisory services is essential but at present close collaboration does not exist.

Public Relationships

14. While the relations between the advisory service and the Director of the Agricultural Bank, the officials of the Unions of Co-operatives, members of the Colleges and Research Staffs are on an excellent basis, they could be further developed with mutual benefit. Greater efforts to interest the general public in the advisory programme and its achievements should lead to very beneficial results.

III. Evaluation and Suggestions for Further Development

15. The need of an enlarged and expanded advisory service for Greece was apparent to the visiting team and this opinion was supported by many informed people contacted during the visit. The present limited work is excellent in quality and reflects credit on the advisory staff. Limited personnel and financial assistance, however, are great obstacles in the way of further advance. The recommendations set out below should assist in the solution of the many problems impeding the development of agriculture.

(1) The visiting team understood that a separate division for the advisory service is contemplated in the Ministry of Agriculture. This is a forward step and should make possible better co-ordination of advisory work among the several divisions and at

the same time promote closer relationships with both teaching and research. It should also prove helpful in establishing a strong educational and advisory programme for agriculture. The visiting team endorses the decision to set up the new division and recommends that it be constituted without delay.

(2) According to a study recently undertaken by E.C.A., the advisers or agriculturists devote 40 % of their time to office work and 60 % to field work. A part of the time for field work (15-20 %) is devoted to agricultural action programmes, such as grasshopper and dacus fly control. The team recommends that serious consideration be given to the possibilities of relieving the advisers of much of their regulatory and administrative work. In no case should they be expected to perform regulatory work which would lessen in any way their friendly relations with farmers. In any case, much of the administrative work could be done by far less highly trained personnel.

(3) The team observed that the staffs of the colleges and research institutes meet occasionally with the advisory staff and sometimes attend the meetings of farmers. There is a lack of co-ordination between the work of the institutes and between the colleges and, moreover, the result of the research work does not reach the farmer as quickly and effectively as desirable. The time available to the staffs of the colleges and research institutes for such work is too limited and the advisory specialists at present employed are too few. More advisory specialists should be employed with the object of bringing about closer co-operation between colleges and research institutes and advisory workers and farmers. Such specialists should be well trained in their respective fields and might profit with experience of the methods employed for similar work in other countries.

(4) The two agricultural colleges in Greece are under the direction of different ministries. This situation leads to some undesirable results and the visiting team recommend that immediate and serious consideration be given to bringing about the necessary co-operation to achieve the most economic utilisation of available resources. The team also recommends that consideration be given to greater development at each college of research and teaching, in agricultural subjects closely related to local conditions. If such a policy were followed it would be possible to provide the colleges with efficient laboratories and other equipment without greatly increasing the expense involved.

(5) While colleges provide adequate courses in some basic agricultural subjects the course essential for advisory personnel

is inadequate. It is therefore recommended that attention be given to advisory methods and closely related subjects.

(6) Public elementary education is of rather low standard and few of the farm youth receive any further training. As a result the educational standards in rural areas are very unsatisfactory. To raise the standard of rural education to a more satisfactory level, the training of farmers' boys was initiated recently in about 100 rural villages largely through winter courses, excursions, and the use of bulletins and circulars. It is recommended that this work be extended as rapidly as possible to all villages in the country.

(7) Trained graduates in Home Economics are assigned to certain communities. The work is supervised and financed jointly by the American Near-East Foundation, E.C.A., the Ministry of Agriculture, and the farmers' co-operatives. It has proved to be most successful and the team recommend that this work with farm women be extended as rapidly as possible to all communities.

(8) In some villages the advisory agriculturists are working successfully with farm committees. It is recommended that the formation of such committees be encouraged in all villages. The possibility should be examined of obtaining additional funds for the advisory service through these local committees.

(9) The State Agricultural Bank employs 250 agriculturists, the main task of which staff is to advise the Bank on the economy of the projects for which loans are requested. Since the agricultural Bank is a state enterprise it is recommended that closer co-operation be established between its Advisory Service and the Advisory Service of the Ministry. Co-operation would also be highly desirable between the Advisory Service and the farmers' co-operatives.

(10) Greek agriculture is largely occupied in producing arboricultural and viticultural products, and tobacco, for export. Much of the basic foodstuffs to meet the needs of the population must on the other hand be imported. In view of the unfavourable export conditions at the present time there is a very urgent need for a reduction in the costs of production. At the same time marketing must be more efficiently organised. In view of the necessity for farmer education in these important matters, the visiting team recommends that an intensive programme of advisory work be initiated and developed on farm economics and marketing methods. The appointment of specialists to assist the advisers should be helpful in forwarding this important work.

(11) One of the greatest obstacles to efficient farming in Greece is that small farms are split up into a great number of parcels which are often located far from each other. Soil erosion and lack of irrigation are also serious problems in many parts of the country. In order to direct farmers' interest in land reallocation, soil conservation and irrigation, it is recommended that the advisory service give a high priority to these matters.

(12) Since the farmers live in villages and there is generally a wireless set available in each village, it is recommended that greater use be made of the radio by the advisory service, particularly for subjects which are of general interest.

(13) It is recommended that when the new Division for the advisory services is set up, suitably trained personnel be assigned to prepare and develop visual aids such as films and slides for the use of advisory workers. The provision of attractive pamphlets should also receive attention.

(14) The present advisory staff is inadequate in number, yet personnel must devote much of their time to the training of boys' in short time courses. The visiting team strongly recommends that, as soon as circumstances permit, the staff of the advisory service be substantially increased.

(15) The travelling facilities and travelling allowances accorded to the advisers are inadequate. Allowances for these purposes should be increased, to better utilise the time of the advisory staff. Suitable transportation facilities should also be provided.

VII

IRELAND

Duration of visit: 13th to 25th February, 1950.

Members of Visiting Team:

Mr. Th. Vendelbo ANDERSEN (Denmark), *Chairman*;
Mr. Aslak LIDTVEIT (Norway), *Secretary*;
Mr. Paul E. MILLER (United States), *E.C.A.*

1. Every effort was made by the Minister of Agriculture and his official staff to give helpful assistance to the Survey Team which visited Ireland. The preliminary conference with the staff of the Ministry provided the necessary background information on Irish agriculture and the organisation of the Advisory Work. The field trips which followed gave the members of the Team the opportunity to observe the functioning of the Service at the county level. The several conferences with county advisory staffs were most informative. Visits to farms, educational institutions, research centres and marketing organisations were an important contribution to the overall appraisal of the Advisory Service.

I. Introduction

2. The following brief summary of the agricultural resources of Ireland and the social and economic factors that affect farm people is appropriate to an understanding of this report. The land area of Ireland is 17 million acres, of which approximately 2.6 million acres are under tillage crops, 2 million acres hay, 7 million acres pasture, 2.5 million acres bog and 3.5 million acres forest and other land. Approximately one-half of the three million people which make up the total population live on the land. There are 300,000 farmers. The total number of farms above 5 acres in size is 293,000, of which only 80,000 are

50 acres or more. Climate has largely determined the type of Irish agriculture. Mild temperatures prevail throughout the year, with ample rainfall well distributed throughout the growing season. These conditions are ideal for grassland farming. As a result, grassland farming prevails throughout the country and livestock production, principally store cattle, is the major source of income and Irish agricultural policy is based upon the production of live cattle for export. Other important sources of income are from dairy products, pigs, poultry, sheep, sugar beet and cash grain. Agricultural production accounts for one-third of the national income and more than 80 % of the total value of Irish experts. The marketing of the store cattle is based largely on individual sale by the farmer to either local traders or to cattle dealers for the city trade or the export market. Most sales are made at local fairs, a tradition with Irish farmers, but there is, however, a large weekly cattle market at Dublin, the capital city. Approximately 50 % of the farmers sell milk to dairy co-operatives and the marketing of the manufactured products is done by those co-operatives. The production of dairy, pig and poultry products is on the increase and on an export basis.

3. Irish farmers are most fortunate in that they have title or are in the process of acquiring title to their individual farms. There is little landlord farming in Ireland. Annual payments for farmers acquiring ownership are on a reasonable basis and can be met within the existing farm income. The farmer owns his own farm and implements, and many farmers have some capital in the bank. Available figures as of January 1949 indicate that farmers had 65 million pounds on deposit in the banks and only 11,5 million pounds of borrowed money from these banks for production purposes. The latter figure does not include sums on loan from the Agricultural Credit Corporation. It is observed that the investment of capital in buildings, machinery and equipment, is unusually low as compared with other countries.

4. Social and economic conditions affecting farm people in Ireland are similar to those in other countries. There is need for better housing, rural electrification and other attributes of improved farm living. On the other hand the diet of farm families is adequate. Free primary education is available to all children in rural and urban areas and generally a wholesome social life is prevalent. Health education is needed and steps are being taken by the Minister of Health to improve rural health

facilities. The general level of intelligence of people living on farms is rather high.

5. There are three distinct movements among farm people in Ireland of special significance. One of these is the Young Farmers' Clubs, which have made remarkable grewth during recent years. Their organisation is strictly educational in nature and is composed of forward-looking young men engaged in practical agriculture. The Young Farmers' Clubs now number more than 300. They work closely with Advisory [1] Agents and support all their activities. They can well form the basis of a widespread local leader programme to forward all advisory work. A second important agricultural organisation is the Irish Country Women's Association. This organisation is interested in the social and cultural improvement of rural life. It is also actively supporting advisory work and could be expected to further the development of programmes and activities that will improve country living. The third movement, Muintir na Tire is a movement to develop the spiritual and social life of the people on a community basis. This organisation is also doing excellent work and receives full co-operation from the advisers. There are a number of strong, well-organised co-operatives in Ireland, which deal in the processing and marketing of dairy products. These co-operatives are doing excellent work and could be of much assistance to the County Instructor in joining with him in educational work. Such joint action would assist in promoting the improvement of feeding pratices and the quality of milk produced on the farms of the Co-operative members.

Aims and Scope of Advisory Work

6. The overall educational objective of advisory work as now conducted in Ireland is to improve the technical efficiency of the farmer in the conduct of his farm operations. The average Instructor has had little time to develop activities in the field of social objectives. Little systematic work is done in agricul-

[1] In the report on Ireland, the terms "adviser" and "instructor" are used to designate advisory workers. It is understood that they are used synonymously to cover the activities of people engaged in advisory work. The term "Department" refers to the Department of Agriculture, otherwise the Ministry of Agriculture. The term "scheme"(s) refers to the projects or plans issued by the Department for County Committees of Agriculture to carry out. The regulations of any scheme may be modified to suit local conditions with the sanction of the Minister. This sanction is generally obtained in practice where warranted.

tural economics. Technical information is disseminated largely through individual contact with farmers. Important problems are referred to research institutions by several of the Instructors. Much of the emphasis of the Advisory Programme is directed towards soil improvement and specific problems of individual farms. An extensive programme of soil-testing is under way and advisers give a great deal of their time to taking soil samples. It is estimated that at least 100,000 soil samples will be tested in the newly-established soil-testing laboratory at Johnstown Castle Agricultural College during 1950.

7. The need for instruction in animal nutrition and livestock management is recognised by the Instructors, but personnel have limited time for work on these important problems. Advisory Work in horticulture and poultry is reasonably well cared for, since special Instructors are employed in each county for such purposes. County Instructors are reaching a substantial number of farmers through individual visits. Sample county reports indicate from 2,000 to 3,000 farm visits per year in each County. This is an excellent record, although it leaves too many farmers still to be reached. The emphasis on all Advisory Work is on specific farm problems and there is little specially organised advisory work with women and youth. An exception is the work of the Poultry Instructors which is largely concerned with women but deals with work outside the home itself. Little organised field advisory work is carried out in home making.

There are nine agricultural schools or colleges at which courses, usually of one year's duration, are provided for boys. In recent years some of the schools have provided shorter courses for the members of rural organisations such as Young Farmers' Clubs. Advisory officers are always welcome at these schools and quite frequently they organise parties of farmers to visit them. There are twelve residential schools of rural domestic economy where girls are given a year's course in poultry-keeping, dairying and house-keeping subjects. At the Munster Institute girls get a more advanced training in these subjects. Training in home economics is provided in the Vocational Schools and other schools which are under the direction of the Ministry of Education.

II. Present Advisory System

8. The Agricultural Advisory Service is directed and supervised by the Department of Agriculture. The supervisory system includes a number of Junior Inspectors, Inspectors, Senior Inspectors and one Chief Inspector. In each of the twenty-six counties there is a County Committee of Agriculture which is responsible for the employment and supervision of the work of the county Advisers. The County Committee of Agriculture is appointed by the County Council, many of the members of which are often elected on a political party basis. A majority of the members of County Committees of Agriculture are usually members of the County Council, although legally the county committees may be composed at the discretion of the Council either wholly of persons who are members of the Council or partly of Council members and other selected persons. County Committees of Agriculture, in addition to directing the work of Advisory Agents, are responsible for numerous schemes, for which subsidies are made available. The responsibility for the details of these schemes, which are for the improvement of agricultural practice, is lodged with the Chief Agricultural Officers and in some cases with the advisory workers.

9. In each County there are advisers or Instructors in agriculture, horticulture and poultry-keeping. The Instructor's work is based largely on individual farm visits. The practice followed is that farmers call on the Instructors when they desire their assistance. Reports indicate that each Instructor makes up to 800 or more visits to individual farms in a single year. In addition he has from three to four winter agricultural classes which are held in the evenings. Instructors state that about 15 % to 20 % of their time is spent on administrative and reporting matters With Poultry Instructors the time given to such work is more than 25 %. Much of this administrative work is related to carrying out the numerous schemes administered by County Committees of Agriculture. For the year 1948-1949 a summary of the people reached directly through the Advisory Service (including classes, lectures, and farm visits) is as follows:

	Classes		Nr.	Lectures	Farm visits
	Nr. of Centres	Nr. of Pupils		Nr. in attendance	
Agriculture . . .	126	4,494	368	14,682	58,737
Horticulture . .	12	323	370	10,638	46,645
Poultry-keeping .	20	364	378	12,415	73,173

Much demonstation work is carried out by the Advisers, and in 1948-1949 there were: 1.084 Demonstration Plots, 1,109 Experimental Plots and 6 Livestock Experiments. These experiments and demonstrations are for the most part planned by the specialist officers in the Department of Agriculture. Many are, however, carried out on the initiative of local instructors who wish to investigate some local problems and then they may receive the assistance of the specialist officers in the Department.

10. In the western part of Ireland, especially along the sea board, there is a special problem with farmers who have very small holdings. Much of this land is mountainous and of low agricultural value. To provide these small farmers with additional advisory assistance, the Ministry has made available a special State service in addition to the established Advisory Service under the direction of the committees of agriculture. This special service includes a corps of workers called Agricultural Overseers and Assistant Overseers. These special advisers are not agricultural graduates but they have had one year of training at an agricultural school. They work on an intensive basis with the small farmers to improve their production practices and also to assist them in the marketing of their products. They also help in the administration of a number of schemes for the benefit of the smallholders, such as seed distribution and subsidies for the improvement of farm-buildings.

11. The Department of Agriculture also employs officials for inspection service work, including potato inspectors, flax-inspectors, cow testing instructors and dairy produce inspectors. The visiting team had little contact with representatives of the inspection service. It is understood, however, that their time is mainly devoted to regulatory work though they do give instruction to farmers on their special subjects. A country-wide lecture programme by members of the technical agricultural staff and

veterinary staff of the Department of Agriculture complements the work of the county advisers. In 1949, two hundred of these special lectures were given. Advisory Work relating to sugar beet is cared for by the Advisory staff privately employed by the Irish Sugar Company, which is a semi-State enterprise. Advisory Agents in Ireland are not required to assist in administrative work other than the schemes previously referred to. All of these have a direct relationship to the Advisory Work. To complete the picture of educational services to farm people, mention should be made of the rural science teachers employed in the Vocational Schools which are under the direction of the Department of Education. The great majority of these rural science teachers are University graduates in agriculture. Incidentally, rural science or nature study as subjects are not now taught in the primary schools, although they were formerly included in the curriculum.

The Parish Advisory Service

12. The Parish Advisory Service which is being initiated presently will provide one parish Agricultural Advisory Agent for each group of three parishes. The grouping of parishes will be arranged so that there will be from 800 to 1,000 farmers in each Agent's area. This Service, which is administered by the Department of Agriculture, will extend to any county when the County Committee of Agriculture requests the Minister for Agriculture to extend the service to the county. In requesting the new services for the county the Committee of Agriculture must agree to place at the disposal of the Minister those instructors in Agriculture employed by it. In this way the existing Instructors in any county together with the extra staff appointed under the scheme, will all come under the same direction. In its initial stages the service will be operated in three counties. Here, approximately 30,000 farmers will be serviced by 32 Parish Agricultural Advisory Agents.. Each Parish Agent must be a graduate in Agricultural Science and must be eminently suitable for Advisory Work.

13. A brief outline of the Parish Advisory Plan is as follows: the scheme is to be confined to three counties until it is functioning smoothly. These counties will need 32 Advisory Agents. These 32 Agents will be selected from experienced Advisory Workers, all of whom are graduates of the University. They will be employed directly by the Ministry which will have the

responsibility for development of the scheme. Its purpose is to give the newly appointed Agents adequate freedom to develop programmes for the farmers within their respective areas, based upon a close study of each farm in the parish. A comprehensive programme of In-Service Training is proposed. It is hoped that these Agents who desire to do post-graduate work in the field will receive the co-operation of the University to the fullest extent. An enlarged programme of post graduate work under the direction of the University would contribute to the realisation of the ultimate objectives in view. The Agents selected to initiate the new Parish Plan should have sufficient time for study and professional growth. By such careful training a corps of experienced workers should be available for the organising of the programme in other counties. The plan proposes that the work of the Agents will be directed towards assisting the individual farmer to develop an overall farm plan by treating each farm as a unit. This is an advanced approach to advisory work. The limiting of the work of each Agent to approximately 800 farmers will eliminate many of the difficulties now experienced by the average Agricultural Instructor. As the Parish Plan is expanded to include other counties, a larger number of well-trained graduates than is now available will be required. The Parish Plan anticipates enlisting the support of voluntary community groups such as the Young Farmers' Clubs, Country Women's Association and Muinter na Tire and also envisages training of local leaders, as well as the use of visual aids, improved publicity, and attractive extension publications.

14. *Personnel.* — The following is a list of Personnel now employed in the Governmental Advisory Service. It does not include those who are at present being appointed for the purpose of the Parish Scheme, the regulatory officials, or the technical advisory staff of the Irish Sugar Company.

	Total number	Permanent	Temporary	University Degree
Advisory Staff:				
Agricultural Instructors (including 19 C.A.Os)	81	55	26	81
Horticultural Instructors	48	45	3	1
Poultry Instructors	79	53	26	0
Secretaries to County Comitices	8	8	0	0
Agricultural Overseers	6	6	0	0
Assistant Agricultural Overseers	78	78	0	0

	Total number	Permanent	Temporary	University Degree
Supervisory Staff:				
Agricultural Junior Inspectors	2	2	0	2
Horticultural Junior Inspectors	3	3	1	1
Agricultural Inspectors	7	7	0	7
Horticultural Inspectors	1	1	0	1
Technical Assistants	1	1	0	1
Poultry Senior Inspectors	1	1	0	1
Poultry Junior Inspectors	2	2	0	2
Poultry Superintending Instructors	5	0	5	0
Supervising Overseers	1	1	0	0
Senior Inspectors	1	1	0	1
Chief Inspectors	1	1	0	1
Assistant Secretaries	1	1	0	1

Selection and qualification of New Workers

15. *Agricultural Instructor.* — Essential: University degree in Agriculture and a sound knowledge of practical farming. Method of Selection : Established Posts. Appointments are made by the county Committee of Agriculture on the recommendation of the local Appointments Commission which selects the candidate as a result of an interview. The Commission sets up an examining body composed generally of a representative of the Department of Agriculture, one representative of the University, and one or more prominent farmers. An Instructor possessing higher academic qualifications has an advantage over other candidates for positions as the Commission must take this into account. Appointments as Temporary Instructors are made on the vote of County Agricultural Committees. The duration of the temporary appointments is six months, after which they must be renewed. All applicants must have a university degree in Agriculture.

Horticultural Instructors are now required to have a degree in horticulture. Formerly applicants were required to have passed a Horticultural Instructors' Course provided by the Department of Agriculture. Permanent appointments are made by the local Appointments Commission.

Poultry Instructors are required to have completed and passed the Training Course at the Munster Institute. Permanent appointments are made by the local Appointments Commission.

All candidates for Advisory positions must have a sound general education, including four to five years in a secondary school, before proceeding to professional training. The courses

for a university degree in Agriculture and Horticulture comprise a minimum of four years' lectures apart from the time spent on practical farm work. All candidates for the degree must pass two examinations in practical agriculture—one at mid-course and one as part of the final degree test. The Professional course for Poultry Instructors is of two and a half years' duration. The training accorded in both the University and Departmental Courses is of a high professional level. Reference is made in a later section of the report to certain subjects requiring some strengthening.

Training in advisory methods. — There is no systematic training in advisory methods. The young temporary Instructor, when appointed, usually works for some time with an established Instructor.

16. *Salary Scale:*

Established Posts	Salary
Agricultural Instructor:	£345, rising by successive increments to £720 per annum.
Chief Agricultural Officer:	£520, rising by successive increments to £885.
Horticultural Instructor:	£310, rising by successive increments to £568.
Poultry Instructor:	£280, rising by successive increments to £470.

Temporary Posts carry a salary which is the starting point of the above scales. They are not normally eligible for increments though some Committees may grant them. Retirement is optional at 60 and compulsory at 65. Pension is calculated for officers appointed after April 1st, 1948, as 1/80th of actual retiring salary for each year of service subject to a maximum of 40/80ths. On retirement, such officers receive also a sum calculated as 1/30th of retiring salary for each year of service subject to a maximum of 45/30th the retiring salary. The officers contribute 5 % of salary each year to the Superannuation Fund. Officers appointed before April 1st, 1948 may accept benefits under the above scheme by making some contribution. Otherwise, they may continue, as under the old scheme, to receive 1/60th of average salary in each of the three years preceding retirement for each year of service subject to a maximum of 40/60ths.

Programmes and Programme Planning

17. The Chief Agricultural Officer and his staff are free to develop the county programmes in line with directives of the

Ministry and the schemes for agricultural improvement. The development of such programmes appears to require strengthening at the county level with adequate assistance from the officials of the Ministry. The usual programme includes individual service to farmers, one or more evening classes during the winter months, work in connection with the agricultural schemes, and the experiments set out by the Ministry. News stories and circular letters receive only minor attention and cannot be considered as being of much importance in the advisory programme as it is now conducted. Radio, exhibits and posters are used to a limited degree.

The thorough-going programme of individual visits has made advisory work in all counties an important public service. The work is appreciated and used to a remarkable degree by large numbers of farmers. Calls upon the Agents for their services far exceed the time available to meet the demand.

Relationship of Advisory Work to Research and Teaching

18. *Administrative Relationship.* — There is little administrative relationship between the advisory work and the research and teaching programmes.

Functional Relationships. — Research work is carried out at the Albert Agricultural College in Dublin, and to a lesser extent at the Dairy Science Faculty of the University College in Cork. At Johnstown Castle Agricultural College there is being organised a programme of needed research work in soils. In general, research work is directed towards some of the important problems of Irish agriculture, particularly in the field of soils and crop investigations. There is a good deal of field experimental work of a practical nature being carried out on grass-land problems. In view, however, of the importance of grass in the economy of Irish agriculture, considerably increased attention should be given to fundamental research in this subject. The team was informed that a grass-land experimental station is now in the process of organisation. There is little research on social or economic problems related to farm people. The Agricultural Science Association issues an Agricultural Record summarising research work which is made available to members of the Association and to County Instructors.

Financing

19. Information on national finances and the amount allocated for agricultural and advisory work are enumerated below:

National Budget	£65,406,570
Agriculture	8,839,630
Extension (salaries and expenses of staffs: does not include Agricultural Schools) .	166,874

Source of funds and division of responsibility

Funds of County Committees of Agriculture are obtained from a local tax determined by County Councils. The law permits a minimum tax of 2d. per £ and a maximum of 7d. per £, and an approximately equal contribution is made by the State. The responsibility for the expenditure of these funds is lodged with the County Committee, but all proposed expenditures are subject to the Department's approval. Funds are relatively stable while showing a continued tendency towards an increase in recent years.

In-service Training

20. There is a limited specialist service provided to assist county advisory workers but its personnel is insufficient. National conferences for Agricultural Instructors were held in 1941, 1944 and 1946; for Horticultural Instructors in 1948; and for Poultry Instructors in 1949. Regional or county conferences for advisory workers are held only at irregular intervals. In recent years some short refresher courses have been held but there is need for considerable development in this aspect of in-service training. There is no plan to grant county advisory officers leave for study. It is planned to re-introduce the policy, in effect before the war, whereby instructors participated in tours in other countries for observation and study of advisory work.

Advisory Methods

21. The major advisory method in use is the individual farm and home visit. These visits are made in response te requests on the part of farmers for the Agent to visit them and give assistance. In regard to the Poultry Instructors, these calls are largely in connection with the subsidy schemes. The farm visits of agricultural and horticultural instructors are, in the majority

of cases, of purely advisory nature. There is also a limited number of office calls and correspondence. All advisory Agents carry out demonstrations in their counties, the majority of which demonstrations are outlined by members of the staff of the Department. The programme in effect to reach large numbers of farmers through group meetings, leader training meetings, advisory schools and study courses, needs to be strengthened and put on a more vigorous basis.

III. Evaluation and Suggestions for Further Development

22. There are many features of the advisory service in Ireland that are highly commendable. Well-trained capable advisory workers are located in all counties. They have the confidence of farmers and fill responsible posts in their respective communities. They are also alert to the important problems facing Irish agriculture. There is strong support for advisory work in the Ministry of Agriculture. This is emphasised by the introduction of the new Parish Plan. The following suggestions should be of assistance to those responsible for the administration and development of advisory work.

(1) There is a vital need for effective co-ordination of agricultural research, education and advisory work. These three allied branches should be welded together in a much more unified organisation than now exists. The overall effectiveness of the advisory work now being done would be greatly improved through such co-ordination.

(2) The agricultural curriculum of the University, while strong in many Departments, appears to be rather weak in some Departments which are of the utmost importance in a well-rounded training of advisory workers. Deficiencies are apparent in agricultural economics, including training in marketing, farm management, co-operative organisation and agricultural policy. Since Irish agriculture will be increasingly dependent on effective marketing and improved farm management, a lack of sound training in these important subjects is a serious deficiency in the education of advisory workers. Farm mechanisation will be on the increase throughout Ireland in the future. Advisory workers need more basic training in agricultural engineering. The present University course in Agricultural Engineering does not emphasise at all sufficiently the type of training necessary for the adviser in his daily contact with farm mechanisation. Courses

in Adult Educational Methods for future advisers would be highly desirable.

(3) There is a need for an expanded programme of research in production, marketing and distribution. While some very good research is being done in production, it is handicapped through lack of personnel and facilities to meet the need that now exists. Advisory workers, to do their best work, must be supported by a strong research programme, adequate facilities for obtaining new research information, and training in the application of that information to their work among farmers.

(4) At the present time there is not a sufficient number of advisory workers in agriculture to serve adequately the needs of Irish farmers. From available information the ratio is now one Agricultural Instructor to approximately four thousand farmers. It is impossible for one worker to serve such a large number of farmers. The result is that advisory workers in all counties are greatly overworked and cannot possibly meet the demands for their services. A sense of futility is observed on the part of some workers as a result of this situation.

(5) At the present time advisory work is largely based upon personal visits to individual farms and on the holding of evening classes during the winter months. Evening classes, however, reach a limited number of farmers, and therefore there is an urgent need for greater use of Mass Media in carrying out Advisory Work. It was noted that considerable use is being made of the local demonstration. In order to reach larger numbers of people, more use of the group approach is desirable. Consideration should be given to a greater use of local newspapers, to daily farm radio programmes and to a greater use of visual aids, such as film strips and other educational devices.

(6) At the present time there is little opportunity for the Advisory worker to advance in the Service except to the post of Chief Agricultural Officer in the County. Should an adviser enter the Department of Agriculture as a Junior Inspector, he may start at a salary less than his salary as a County Instructor. This lack of opportunity for promotion would appear to make county Advisory Work a dead-end as far as advancement is concerned. The morale of workers in any organisation is dependent upon an open door to advancement and greater opportunities should be provided for County Advisory workers to be considered for professional advancement. An absorption of suitable personnel from among the Advisers into the staff of the University, the experiment stations and administrative staff

of the Ministry, could be a desirable solution to this problem. The recruitment of trained Advisers to the staff of co-operatives and to private business firms concerned with agriculture would also appear to be a desirable and wholesome development.

(7) At the present time the Instructor is largely left to work out his own problems. A strengthened staff of specialists on important subjects, as a connecting link between the Instructors and the research workers, would be highly desirable.

(8) Very few counties are provided with adequate office space for the Instructors and few have telephone service. It is impossible for the county staff on Advisory Work to function efficiently in the absence of adequate office accommodation. With few exceptions, the office accommodation provided is inadequate.

(9) The County Advisory Work is administered by the County Commitee of Agriculture. This Committee is appointed by the County Council. The membership of the Committee of Agriculture is, with few exceptions, made up of members from the County Council who have largely been elected on a political basis. A local co-operating committee is highly desirable, but it is essential that its membership comprises leading farmers who are given direct responsibility for promoting the work of the County Instructors.

(10) A policy of appointing County Instructors on a temporary basis and renewing these appointments from year to year exists in many counties. Such temporary Instructors have no assurance of tenure and are not eligible for retirement rights as long as they are on a temporary basis. This procedure leads to a lowering of morale and a lack of interest in continuing work. It is recommended that these posts be filled with permanent personnel after a reasonable period.

(11) There is at the present time insufficient opportunity for County Instructors to benefit from programmes of In-Service Training. A noticeable exception is the annual visit to Johnstown Castle Agricultural College, where County workers have an opportunity to benefit from the research work being done at this institution and contact with the workers located at the College. A well-organised programme of In-Service Training in all branches of Advisory Work is needed urgently.

(12) No advisory work under the Ministry of Agriculture is being done in home making with farm women. It is recognised that domestic science is being taught in the vocational and other schools. This, however, does not fill the need that exists

for a programme of Advisory Work with farm women in rural home-making. It is felt that a great need exists for this type of advisory work.

(13) The usual complement of Instructors in any county includes two or more Agricultural Instructors, one or more Horticultural Instructors, and two or three Poultry Instructors. It is suggested that in districts not favoured by nature for horticultural production, much of the horticultural advisory work could be handled by the Agricultural Instructors and that in such areas the future policy should be to increase the number of Agricultural Instructors without any corresponding increase in the number of Horticultural Instructors.

(14) Salaries of County Instructors are less than these being paid other professional workers in the Public Service. The type of men and women required for Advisory Work, the years of training necessary to qualify for the position of Advisor, as well as the importance of the work, all emphasise the need for adequate compensation, otherwise the morale of workers is undermined and the quality of young people entering the profession will gradually deteriorate. We deem it necessary to call this situation to the attention of the Ministry.

(15) The Advisory leaflets now in use could be greatly improved by the use of illustrations and a more generous use of the printer's arts in making them more attractive and readable. It is suggested that a study be made of similar publications being used by advisory services in other countries.

(16) Advisory work in livestock feeding needs to be given special emphasis. Since the income of farmers is dependent on livestock, it is believed that more efficient feeding would substantially increase the returns from livestock production on the average farm. Suitable fodder conservation for winter feeding should be the basis of such a programme.

(17) It is recommended that study be made of the schemes under the direction of and being supported by the County Committees of Agriculture from public funds. It would seem desirable gradually to reduce the amount of money devoted to these schemes and increase funds correspondingly for educational work through the employment of additional instructors.

(18) At present a number of agricultural graduates are employed in the Vocational Schools under the Ministry of Education for the teaching of rural science. The visiting team, because of the limited time at its disposal, was unable to study this branch of agricultural education. From the general point

of view of co-ordination of activity in the field of agricultural instruction, it occurred to the visiting team that consideration might be given to the practicability of transferring this service to the Ministry of Agriculture. Such a transfer might conceivably lead to a greater return from public funds and increased efficiency in the system of agricultural advice and instruction. As Ireland is essentially an agricultural country, it was thought that consideration might also be given to the teaching of nature study in primary schools.

23. The new "Parish Plan" now being instituted with the support of the Ministry is a most forward step in the improvement of agricultural Advisory Work in Europe. Wisely directed, it should greatly improve the economic conditions of farmers, as well as the social conditions in the several communities. It should, in fact, provide the remedy for a number of the situations commented on in this Report.

VIII

ITALY

Duration of visit: 22nd January to 3rd February, 1950.

Members of Visiting Team:
Mr. M. PORTAL (France), *Chairman;*
Mr. W. S. GIBSON (United Kingdom);
Mr. D. HOCTOR (Ireland), *Secretary;*
Mr. Arthur GOBBE (Belgium);
Mr. Paul E. MILLER (United States), *E.C.A.*

1. The members of the team which visited Italy were somewhat handicapped in that the trip started at Milan, and there was no opportunity to confer with the officials of the Central Ministry until the team arrived at Rome at the end of the visit. Moreover there was not sufficient time to visit the Southern part of the country where the aricgultural situation is very different from that in Northern Italy where the days in the field were spent. Consequently, the report on Italy is not as comprehensive as the team would have desired. While in the field the Regional Inspectorates and their staffs at Milan, Venice and Bologna made every effort to supply the necessary information on the organisation of the Advisory Work. Many conferences were held with local inspectors (advisers) and provincial officers. Numerous visits to farms, agricultural schools, experiment stations, co-operative marketing organisations and other agricultural centres helped greatly to evaluate the work being done, the agricultural problems of the regions visited and the needs of the Advisory Service. The last three days of the visit to Italy were spent in Rome where conferences were held with the officials of the Ministry. Here additional information was obtained on the agriculture of the areas not visited. The organisation of the Department of Agriculture was explained and many points cleared up that were discussed while the team was in the field. The

organisation and needs of the Advisory Service as a whole were discussed at length with the officials in charge of the service.

I. Introduction

Background

2. Italy is a country of very great contrasts. From the Swiss border on the North to the South of Sicily, it extends over 10 1/2 degrees of latitude but is relatively very narrow from East to West. In the North and down the centre lie the mountainous regions which exert their effects upon soils and climate and in consequence the agricultural production varies widely throughout the country. The latest official figures give the land area as 29,373,000 hectares, of which 22,138,000 hectares are used for agriculture. This last figure includes 15,412,000 hectares of tillage land and most of the remainder is devoted to forestry which occupies more than 5.5 million hectares.

3. The team, during its visit, was able to observe only agricultural conditions existing in the Northern Provinces of Lombardy and Venice. The conditions in the area visited were most favourable for high production, being developed to a notable degree. It should, however, be realised that in the south of Italy, due to a combination of climatic and topographical features, the agricultural output is much lower. In these latter areas the farming has been traditionally less intensive, but the present policy is to develop and expand production by dividing the large farms into smaller units. There are 4,196,266 farms in Italy ,1,491,081 of which do not exceed one hectare in size. Twenty-one per cent of all holdings are under 0.5 hectare and only 1.1 % exceed 50 hectares in size, though the latter occupy 41 % of the total agricultural area.

4. A wide range of crops is grown. The principal crops are:

(1949)	Hectares	Average yields per hectare, in kilos
Bread grains	4,822,000	1,496.1
Coarse grains	1,957,000	1,045.2
Leguminous crops	1,188,000	416.7
Rice	134,000	4,470.1
Potatoes	390,000	6,697.1
Sugarbeet	126,000	27,388.9
Oil-bearing seeds	28,000	1,000
Tobacco	58,000	1,103.4

The production of grapes, fruits, olives, and mulberries for silkworm production is also extremely important.

5. The population has increased very rapidly during the last century as is shown by the following summary:

Year	Population
1871	26,801,154
1901	32,475,253
1921	37,973,977
1931	41,176,671
1948	45,976,000

This density of population has had two very important effects upon economic and social conditions in Italy, viz:

(1) Although the agricultural production in the areas visited can be regarded as very high, the total production of food for the country is insufficient to meet the needs of the population;

(2) Since agriculture is Italy's most important industry, an abnormally high proportion of the people must live and work on the land.

This latter situation results from the relative dearth of mineral resources and consequent difficulty of developing industry to the extent where it can absorb a proportionate part of the increasing population. At present 20,000,000 people are deriving their living from the land. This very high density of population creates a serious employment problem and the present policy of the Italian Government is to maximise employment in agriculture. In the region of Lombardy, first visited by the team, the law required the employment of one worker per three hectares of land, and in the second region visited (Venice) the legal requirement was one worker for each 2.5 hectares. As a result of these conditions, mechanisation cannot be developed to lower production costs as is being done in many other European countries.

6. In the areas visited by the team there are extensive co-operative marketing organisations. Farmers' co-operatives are handling the processing and marketing of milk products on a large scale, as well as fruit, tobacco, wine manufacture, and the drying of silkworm cocoons. Co-operatives also supply much of the farm requirements, such as fertilisers, feeding stuffs and seeds. Other forms of farmers' syndicates are assisting in the Government's extensive programme for land reclamation, drainage and irrigation. The financial position of the Italian farmer

is difficult at the present time. The team was informed that the prices secured by the farmer for his products in 1949 were 49 times those ruling in 1938 but that his labour costs had risen 70 times and the prices of his requisites, such as fertilisers, 66 times in the same period.

Aims and Scope of Advisory Service in Italy

7. The efforts of the Advisory Service are concentrated on the need to increase agricultural production in order to more nearly meet the food requirements of the population and provide a surplus of some food commodities such as fruits for export. If this objective can be achieved, the national trade balance should improve, and the resulting increased employment of rural labour and better utilisation of labour should lead to higher farm incomes and to an improved social standard.

II. Present Advisory System

Organisation of the Advisory Service at All Levels

8. There is a long tradition of agricultural education in Italy and courses of agriculture were organised at the University of Padua as early as 1771. A "travelling professorship" established at Rovigo in 1866 appears, however, to have been the first attempt to provide Advisory assistance to the farmers. Before long, "travelling Professors of Agriculture" were to be found throughout the land and it is of some interest to note that, as in some other countries, the first advisory workers owed their appointments to provincial bodies and not to Governmental action. The "travelling professorships", which were the precursors of the Provincial Inspectorates of to-day, were nationalised in 1937.

9. The work of the Ministry of Agriculture is divided into six Divisions, each headed by a Director-General. They are as follows:

(1) Agricultural production;
(2) Forestry (including improvement of mountain grazing);
(3) Land reclamation (Bonifica);
(4) Land and soil improvement;
(5) Economics;
(6) Administration and Personnel.

There are nineteen administrative regions which vary considerably in size. For agricultural purposes, however, they have been regrouped to provide fourteen Regional Inspectorates. The regions are in turn sub-divided into 90 "Provinces", each in charge of a Provincial Inspector. Most of the local advisory staff in each province deal with general agriculture and have their separate territories, but there is in addition a small number of specialists who are available to the general Advisers.

10. Officers of Provincial Inspectorates are required to carry out many functions of a non-advisory character. Thus in the province of Venice the team was informed that the chief of the Provincial Inspectorates or other officials of the Inspectorates must attend all meetings and often direct the work of the following Commissions and Committees:

(1) Provincial Committee for Agriculture;
(2) Tribunals and Appeal Courts for the settlement of agricultural disputes;
(3) Commissions for allotments of land to agricultural labourers;
(4) Commission for decisions regarding fair rents;
(5) Commission for agricultural employment;
(6) Commission for social assistance;
(7) Committee for agricultural price control;
(8) Committee for anti-malaria campaign;
(9) Committee for the improvement of small farms.

The officials of the Inspectorates have also certain duties in connection with the collection of statistics and the examination of projects for which State subsidies are claimed by farmers.

Personnel

11. There are in all 576 officers holding University Degrees and 315 with Agricultural School diplomas employed in the Italian Advisory Service. Of these 90 are engaged in the Technical Sections of the Central Administration and take an indirect part only in the field of Advisory Work. In addition 160 technically trained men hold temporary appointments. The total trained staff is therefore about 1,000 (excluding the Forestry technicians). During the last war a separate organisation was created to carry out the various duties connected with food production and collection, and this body is now being dissolved. It includes a number of technically trained men, some of whom

have agricultural qualifications. These latter are being absorbed into the Advisory Service. This staff provides approximately one adviser for each 4,000 farms, or if farms under one hectare are excluded, there is one inspector for each 2,700 farms. It must be again emphasised, however, that only part of each officer's time is available for advisory duties.

Financing

12. The Italian National Budget for 1949-1950 amounted to 1,530 billion Lire. The estimate for agriculture was 37 billion or about 2.5 % of the total. A sum of 28 billion was allowed for reclamation projects and 2.5 billion for forestry. It is not possible to say precisely what proportion of the estimate for agriculture is expended on Advisory Work since this Service is inextricably tied up with activities of other Divisions. The Officers attached to both Regional and Provincial Inspectorates are paid according to their grade in the Civil Service. The principal grades are as follows:

Officer	Grade	Salary per month in Lire
Junior technician in province . . .	10	17,000
Provincial Inspector	6	21,000
Regional Inspector	5	37,000

Cost-of-living allowances are also paid. A married man, for example, with two children would receive an additional 21,000 Lire per month, irrespective of his grade.

Training and Qualifications of Personnel

13. The team made enquiries regarding the courses followed in the Agricultural Faculties of the Universities and were informed that the duration of the course is generally four years, the first two years being spent mainly in the study of the pure sciences and the last two years being devoted mainly to agriculture and the applied sciences.

14. The junior technical staff who are not University graduates have usually received training at a Technical Agricultural Institute. Some of these latter institutes specialise in particular branches of agriculture such as vine production, tobacco growing and processing.

In-service Training

15. There is no well organised programme of in-Service Training at the present time.

Programmes and Programme Planning

16. The programme of agricultural policy is decided by the Minister of Agriculture and communicated to the Regional Inspectors at their monthly meetings held in Rome. The Regional Inspectors in turn hold periodical meetings with their Provincial Inspectors and communicate to them the general programme with the modifications arising from the particular conditions of the Region. Bearing these instructions in mind, the Provincial Inspectors hold consultative meetings with the Councils of Agriculture of their respective provinces. These Councils, presided over by the Provincial Inspectors, comprise representatives of the Prefecture, large farmers, landowners, tenant farmers, the "Consorzi", officers of the co-operative supply organisations, the chamber of Commerce and graduates in agriculture living in the Province. These consultations between the Provincial Inspectors and the Provincial Councils of Agriculture allow for the formulation of a practical policy at the provincial level in line with the national policy.

17. The setting up of the Advisory programme for the Province falls within the competence of the Provincial Inspector. This programme is then submitted for approval to the higher authorities, which contribute most of the money necessary for its implementation. Provinces, Communes, Chambers of Commerce and other organisations occasionally contribute limited amounts for the promotion of agricultural activities of a local character, such as shows and exhibitions.

Research Relationships

18. Agricultural research and experimental work is at present being carried out by the agricultural faculties of the universities and at 52 experimental stations, 41 of which are under the control of the Ministry of Agriculture and Forestry. The experimental work covers a wide field embracing such subjects as agricultural entomology, agricultural bacteriology, plant pathology, agricultural chemistry, plant-breeding, crop production, animal husbandry, dairying, poultry-keeping, fruit-growing, vine culture and wine production, olive and olive oil production, mul-

berry trees and silk-worm production, floriculture, agricultural machinery, and refrigeration. The Ministry of Agriculture provides reports on research and experimental work to the members of the Regional and Provincial Inspectorates. The Team was informed that whenever requested the university authorities cooperate with the Provincial Officers in the solution of local problems of unusual difficulty.

PUBLIC RELATIONSHIP

19. The Team was impressed by the close working relations which exist between the Inspectorates and the local farmers' organisations. Many co-operative societies owed their origin to the inspiration of the advisers. The Team was also impressed with the ability of many of the officers of the co-operatives, and it was also observed that the Inspectors in charge of Regions and Provinces appeared to be men of outstanding personality and efficiency, and it is pleasant to record that their prestige among both the rural and urban population is obviously high.

III. Evaluation and Suggestions for Further Development

20. The density of population in Italy and the general economy of the country demand that the maximum use should be made of its agricultural resources. The Team is satisfied that very good work has been accomplished by the personnel of the present Advisory Service and by their predecessors—the "Travelling Professors of Agriculture"—in raising the technical efficiency of Italian farming. The Team believes, however, that there is much opportunity for further improvement, and therefore put forward the observations and suggestions enumerated below for the consideration of the Italian Ministry of Agriculture.

(1) Comparison between the number of agricultural farms and the staff of Advisory Services shows that, even when farms under 1 ha. are excluded, there is only one Adviser for 2,700 farmers. It is considered that the number of advisory officers now employed is much too low and it is suggested that immediate consideration be given to having the number of advisory officers substantially increased.

(2) At present the provincial officers have considerable duties of a non-advisory character, some of which may tend to create unpleasant relations with farmers. It is difficult to see

how regulatory acts which may bring the adviser into conflict with the farmer can be reconciled with the conception that the Advisory officer should always be the "guide, philosopher and friend" of the farmer. It would be a step in the right direction if advisory workers were gradually relieved of non-educational work of a bureaucratic nature. The team suggests therefore that as a beginning a demonstration should be made by taking two provinces—one in Northern Italy and one in Southern Italy—and placing in them advisory officers who will devote their full time to advisory work.

(3) It appeared to the team, from its examination of the Advisory Programme, that little of its content related to rural home-making. Since living standards are an important factor in the development of citizenship it is suggested that consideration should be given to the enlargement of the extension service to include activities in this field. Such work should relate to the needs of the family, including nutrition and health, as well as to the usual home-making functions. It would comprise work with women in the homes as distinct from educational courses in Home Economics for students in the organised educational system. Such a programme would necessitate the employment of women advisers who are trained for and are experienced in this type of work. The addition of women advisers would supplement the work of the agricultural advisers and make available to farm families a more complete Advisory Service. It would prove of assistance in drawing up such a programme to study this aspect of Advisory Work as it has developed elsewhere.

(4) Advisory Work with farm boys and girls to develop proficiency in the various farming and home-making practices has proved to be an effective form of training for these young people. Such training is reflected in later years in their more active interest in rural life as well as in making them more efficient farmers and home-makers. There are many devices and methods that may be used to stimulate youth interest in the day to-day work of the farm and home. A study of these methods would determine those most applicable to Italian conditions. The Team believes that work of this nature is highly desirable and suggests that the Ministry of Agriculture should consider the initiation of Advisory Work with youth.

(5) It is essential that advisory officers should be kept abreast of technical advances in agriculture. It is suggested, therefore, that the Italian Ministry should consider the feasibility of arranging regular refresher courses for advisory officers.

Educational tours for officers to other countries might also be considered as part of the In-Service Training Programme.

(6) It is of very great importance that knowledge of new farming techniques and practices should flow quickly from the research station to the farmers and that on the other hand the problems of the practical farmer should be brought quickly to the attention of research institutions. The Team suggests, therefore, that closer working relationships between advisory officers and research institutions should be developed.

(7) The Team is of the opinion that visual aids can be of very great value in Advisory Work, and it is suggested that consideration by given to making better provision for equipment such as projectors, films and film strips.

(8) The radio is an important aid in Advisory Work, and it is suggested that a greater use might be made of that medium.

(9) At the present time advisory officers are not provided with proper travelling facilities and are greatly handicapped in their work because of this situation. Adequate travelling facilities are one of the necessary essentials if advisers are to give really efficient service. It is suggested, therefore, that this matter should be given serious consideration by the Ministry.

(10) The over-riding factor affecting the efficiency of the Italian Advisory Service is lack of finance. Since the economy and future well-being of the country is so largely dependent on its agriculture it is the opinion of the Team that more generous budgetary provision for Advisory Work would be an excellent and remunerative investment for the nation.

IX

NETHERLANDS

Duration of visit: 22nd January to 5th February, 1950.

Members of Visiting Team:
Mr. G. R. YTTERBORN (Sweden), *Chairman*;
Mr. Aslak LIDTVEIT (Norway), *Secretary*;
Mr. Constantin SVORONOS (Greece);
Mr. Arthur L. DEERING (United States), *E.C.A.*

1. The fullest co-operation was given to the Visiting Team in the Netherlands. Conferences were arranged with representatives of the Ministry, with the Director in each several Sections of the Department of Agriculture and with a representative of the Ministry of Education dealing with Home Economics. Much of the information obtained was of the utmost value, in making an assessment of the Advisory System. Visits were made to the Agricultural College at Wageningen; to the Central Institute for Agricultural Research; to the Laboratory for Bulb-phytopathology; to Horticultural Schools; to the reclamation work at the North-East Polder; and to the Island of Walcheren. Visits were also paid to farms and farm homes in several areas, and conferences were held with the Farmers' Union and other associations and groups.

I. Introduction

2. The Netherlands is a flat country and hills of more than 100 m. altitude are an exception. The total area is 32,850 sq.km., of which 72.8 % is under cultivation. A mild humid climate prevails with an annual rainfall of 700 mm. evenly distributed throughout the year. The total cultivated area has increased considerably during the last 20 years owing to reclamation of waste land and drainage of wharfs, lakes, pools and the inland sea now comprising the North-East Polder. The population is

almost 10 million. The density of population is therefore 300 persons per square kilometre, which is greater than any other country in Western Europe. The educational standard of the people is rather high. Dutch agriculture is in the main highly specialised, and large areas are devoted to arable farming, grassland farming and dairying, fruit-growing, vegetable growing, and bulb growing. Mixed farming, however, is also practised appreciably in the sandy soil regions. Production is highly intensified and farms are generally small. About 80 % of the farm holdings are less than 12.5 hectares. Approximately 60 % of the farms are rented. Compared with other countries, the level of agricultural production is high. The yields per hectare are among the highest in the world, and the production of quality products is highly stressed. Superphosphate and nitrogenous fertilisers are manufactured in sufficient quantities to supply home needs, but potash must be imported.

3. The cultivated area amounts to only 24 ha. per 100 inhabitants; more than half of the cultivated area consists of permanent grassland. Nevertheless the Netherlands exports very large quantities of agricultural and horticultural products. The main commodities exported are butter, cheese, condensed milk, milk powder, pork, eggs, potatoes, vegetables, bulbs and fruit. About 50 % of the value of the total exports of the country are agricultural products. On the other hand, the Netherlands must import more than 50 % of its bread grain requirements and approximately two-thirds of the grain required for livestock feeding. The marketing of agricultural products is done both individually and co-operatively. In most cases the arable farmers deliver their crops to a dealer in the nearest town. In some cases the dealer are substituted by a co-operative marketing organisation which is generally of a local character. Sugar-beet is sold to refineries, the majority of which work on a co-operative basis. Cattle are sold at local points to butchers, wholesalers and export firms. Milk is delivered to the dairy factories, which are mostly co-operatives. These factories market their products to wholesalers and retailers. The horticultural trade is carried out mainly through the auction markets. Products are graded and packed either by the grower or as specially equipped grading and packing stations which generally from part of the organisation in charge of the auction market. An inspector at the auction market examines the quality of products in accordance with certain standards.

4. There are about 1,300 farmers' credit banks owned by associations of farmers. Two Central Banks have been established by the banks of the farmers' co-operatives. The aim of the Central Banks is to act as custodians for the surplus funds of local banks, to lend, to control and advise banks, and to promote the establishment of local farmers' credit co-operatives. Much of the money entrusted to the Central Banks is used to finance co-operative undertakings such as co-operative factories, purchase societies and auction marts. Present investments in agriculture are satisfactory, but the future extension of the agricultural industry will require additional financing. This will be true especially for the reclamation of land in the Zuyderzee, a project which will be financed by the Government. The total investment in Holland for 1949 was estimated at 3,000 million guilders. Of this figure 1,200 million guilders were devoted to maintenance of old enterprises and 1,200 million guilders used for new projects. Three hundred million guilders were invested in agriculture, of which some 100 million guilders were devoted to old enterprises and 200 million guilders were for new projects.

Agricultural and Horticultural Education

5. All agricultural and horticultural education is directed and supervised by the Ministry of Agriculture, and the training in the domestic field is directed by the Ministry of Education. An agricultural and horticultural education is given in the elementary and secondary schools and also at the university level. Winter courses in agriculture and horticulture are arranged by the local agricultural and horticultural societies. These courses are held on two evenings a week, in all parts of the country. The total number of training hours is 144 each winter. The pupils must be at least 15 years old and have completed their elementary education. In 1948, 928 courses in all were held at which 16,460 pupils attended. There are four types of elementary agricultural and horticultural instruction. The first type comprises a course of 40 weeks with instruction 2 days a week and a total of 400 hours instruction. The other three courses are for a shorter period of time and the courses are less intensive. The number of these schools has grown and in 1948 there were 150 schools with 13,603 pupils. The pupils must be 14-17 years old, and have completed the compulsory elementary education. At the agricultural and horticultural winter schools (secondary schools), courses are given during the winter months. In 1948,

there were 41 of these schools with 3,668 pupils. Pupils attending these schools do practical work on the farms during the summer months. The object of the courses is to give future farmers and market gardeners some theoretical knowledge of agriculture and horticulture, together with further general education. Pupils must be 15 to 16 years old and have completed the elementary school course. Those who want a wider and deeper knowledge than that provided at the agricultural winter schools can continue their studies at higher secondary agricultural schools. There are 3 higher agricultural secondary schools, 2 in horticulture and 1 in dairying. A total of 803 pupils attend these higher schools, which provide many of the leaders of agricultural organisations. Lectures are given only in the winter season, 5 days each week being devoted to the course over a period of 3 winter seasons. Most of the teachers of the winter schools, and of the higher secondary agricultural schools hold the engineers' certificate in agriculture of the University at Wageningen. There is one institution for higher education in agriculture, horticulture and forestry. This institution, located at the University of Wageningen, had 1,154 students in 1948. The graduates of the University in Agriculture are awarded the certificate of agricultural engineer. Important agricultural research work is also carried on at the University. There are 22 laboratories for 2 scientific institutes, and several autonomous research institutes which work in different fields of agricultural, horticultural and forestry research.

Domestic Education and Domestic Advisory Work

6. Domestic education is directed and supervised by the Ministry of Education. In the elementary public schools courses are provided in domestic work during the last two years of the school going period. The daughters of farmers and gardeners generally take these courses. Girls who have completed their elementary education may proceed on short courses in home economics. In the secondary domestic schools courses are offered, but on a higher level. These courses are of one year's duration and provide instruction for 25 to 30 hours a week. There are more than 100 agricultural domestic schools at which 15,000 pupils receive full-time education. Short courses are also provided. Courses in domestic work are also given on behalf of the wives of farmers and farm workers. These courses, are given in the evenings and in 1947, 722 such courses were held which

were attended by 10,635 women. For the training of teachers in domestic education there are five schools. The training is of four years' duration and includes six months practical work. Advisory work for women is directed generally by the Ministry of Education but in some instances it is dealt with by the Ministry of Social Affairs. Under the inspectors of the Ministry of Education there are 35 women advisers. They work with the women in groups, giving lectures and demonstrations. They do not, however, visit homes. Much of their advisory work is done in close co-operation with women's organisations.

Aims and Scope of Advisory Work

7. The aims of the Advisory Service in the Netherlands are to keep farmers in step with agricultural developments and to improve the efficiency of farming, thereby contributing to the economic welfare of the nation.

II. Present Advisory System

8. The Advisory Service is directed and supervised by the Ministry of Agriculture. Separate sections of the Service deal with Horticulture, Livestock, Arable and Grassland Farming, Dairying, Land Tenure, Land Improvement and Reclamation. The Director of the Horticulture Section is assisted by two inspectors or supervisors, one working on horticultural education and one on horticultural research. The country is divided into 19 districts, each of which has one adviser and a number of chief assistants and assistants. In addition, to these 19 districts advisers, there are 6 specialist advisers. These specialist advisers work in all parts of the country. In all 15 qualified horticultural engineers and 264 chief assistants and assistants work in the Horticultural Advisory Service. Horticulture is very specialised in fruit growing, vegetable growing, bulb growing, flower growing and grass crops. Since specific crops are generally concentrated in certain areas, the horticultural advisers and their assistants become specialists in the crops of their respective districts. In the "Section for Arable Land and Grassland Farming", the Director is assisted by four inspectors or supervisors, one for advisory service, one for research, one for grassland and fodder crops and one for cash crops. There are 23 district advisers' offices with staffs of chief assistants and assistants. In addition,

there are 12 specialist advisers and 13 engineers to help the districts' advisers. The agricultural advisers advise farmers on arable and grassland crops and deal with managerial questions, particularly the problems of small agricultural holdings. The assistants supply advice relating to methods of husbandry relating to the farm as a whole. They co-operate with the livestock, poultry and dairy advisers in their work. Chief assistants and assistants work with farmers and gardeners in districts under the supervision of advisers. The Director of the "Livestock Section" is assisted by 11 district advisers, some specialist advisers, 8 agricultural engineers, and 17 chiefs assistants and assistants. In poultry advisory work there are 6 district advisers and 22 chief assistants and assistants. The Director of the "Dairy Section" is assisted by 10 district advisers, 2 special advisers, 4 engineers and 16 chief assistants and assistants. Advice is given on milk production and butter and cheese manufacture. Lectures are given and courses organised in machine milking, cattle breeding, and dairy control methods. The Director of the "Land Tenure Section" has a staff of 10 advisers, 3 engineers and 40 chief assistants and assistants. This section is engaged in Advisory Work in connection with land tenure, and supervises the enforcement of the statutory measures relating to that subject. They work in close contact with the agricultural advisers, especially those having the care of culture-techniques and horticulture. There is no special Advisory Service for forestry, but advice is given to proprietors of forests regarding the laying-out, maintenance and administration of forests and plantations. Work in the Veterinary Section is mainly concerned with the enforcement of statutory orders and the supervisory measures relating to the combating of diseases of livestock. Advisory Work relating to plant pathology is directed by the Arable Land, Grassland Farming and Horticultural Sections. There are 16 engineers and phytopathologists, 6 district chiefs and 65 technical officers and inspectors, engaged in plant disease control and export regulations relating to agricultural and horticultural products.

9. Advisory Work is almost entirely financed by the Government. Some contribution is made by farmer associations which in certain conditions are allowed the services of an assistant from the Government Advisory Service.

Personnel

10. The total number of advisory staff for agriculture and horticulture was 1,190 in 1948. Of these 194 were advisers and engineers with University degrees, and 996 chief assistants and assistants without College training. The assistants are young practical farmers, who are required to have at least a Winter School diploma with adequate practical training. Subsequent to their appointment they regularly receive further theoretical and practical training. Engineers in agriculture undergo two or three years training with advisers before they obtain an appointment as an adviser or engineer. The advisers and assistants may be appointed on labour contract, temporary or continuous service. The salary of an agricultural engineer varies from 3,480 guilders to 8,640 guilders per annum. For an assistant the salary is from 2,200 to 3,340 guilders per annum, and for a chief assistant from 3,120 to 4,560 guilders per annum. The salaries of the agricultural and horticultural advisory service staff are on the same level as other civil service employees. They are entitled to a pension on reaching the age of 65, which amounts to a maximum of 70 % of the salary earned in the last year of service.

Financing

11. The national budget of all governmental organisations was 2,681 million guilders in 1950, of which 90 million guilders or 3 % was for the Ministry of Agriculture. Of this sum 9.4 million guilders or 10.5 % was for agricultural and horticultural schools, including the Agricultural College, and 7.6 million guilders or 8.5 % for agricultural and horticultural Advisory Work.

Advisory Methods

12. Information is given by the assistants to farmers largely through farm visits. Use is made of lectures, lantern slides and demonstrations to reach the masses. Evening discussions and study days are arranged. The press, pamphlets, and the radio are used to disseminate agricultural information. Excursions are arranged to view experimental farms, demonstrations and machinery and equipment in the field. Demonstration farms play an important role in Advisory Work. Demonstrations are located on typical farms by an agreement between the advisory director and the farmer. A suitable farming system is practised

on the holding. The farmer receives a small fee to cover the extra costs involved.

Programmes and Programme Planning

13. The Advisory Programme is planned in consultation with the farmers' organisations and carried out by the advisory workers. Considerable freedom is allowed to the local adviser in planning his own work.

Public Relations

14. Since the depression in 1930, the national farmers' associations have occupied themselves with matters of agricultural policy. With the relaxation of war control measures the farmers' organisations have been displaying more interest in the practical problems relating to social and cultural questions. Close co-operation exists between the Advisory Service and the various technical agricultural and horticultural organisations.

Relationship of the Advisory Work to Research and Teaching

15. The Director-General of the Department of Agriculture is in charge of Advisory Work, research and teaching. In order to co-ordinate these fields fortnightly meetings are held between the section directors. The directors of the several sections and their inspectors in turn hold frequent meetings with the advisory officers. The advisers hold weekly or fortnightly meetings with their chief assistants and assistants. In-Service Training courses for the advisory workers are frequently given by the specialists and the research workers. Advisory officers hold monthly contact meetings in the provinces with all leading officials working under the direction of the Department of Agriculture. Close contact is maintained between the research institutions and the Advisory Service. Research planning is done in consultation with the advisers. Some investigational work is carried out by the advisers and their staff through experimental plots, experimental farms or gardens. The staff of the research institutions take part in the training of the assistants. Experimental results are reported in special monthly papers for the advisory workers and in many agricultural papers. The assistants also receive the various papers issued by the Government. No official contact has been established between the Agricultural College and the Advisory Service, but close relations are maintained between

several professors and agricultural and horticultural research workers. Many advisors are in regular contact with secondary and primary agricultural and horticultural schools. The directors of Advisory Work are the principals of the horticultural schools as a rule. Some of the agricultural advisers teach at the agricultural Winter Schools and some of the teachers of these schools take part in Advisory Work.

III. Evaluation and Suggestions for Further Developments

16. Advisory Work as organised and administered in the Netherlands is of a very high standard. Credit is due to the directors and field workers for the excellence of the programme. The following recommendations are put forward to assist in the further development of the present system:

(1) In the Netherlands there is one College of Agriculture of University standard, i.e. the Agricultural College at Wageningen. The graduates of this College provide the personnel for the responsible posts in the Advisory Service. In order to adapt the education given to the needs of the Advisory Service it is recommended that instruction on advisory methods be included in the curriculum. It is also recommended that more through training be given in economics, marketing and form management.

(2) There is a large and ample staff employed in the Advisory Service. This staff is however largely comprised of personnel without university qualification. The general educational level of the farmer in the Netherlands is rather high. Many of the farmers have experience and technical training equal to that of the adviser of the assistant grade. For those reasons it is recommended that, as opportunity arises, consideration be given to increasing the proportion of university trained personnel. At the same time every effort should be made to raise the general educational level and strengthen the training of the advisers of assistant grade.

(3) There are four different sections in the Ministry of Agriculture participating in Advisory Work in agriculture and horticulture, each section serving its particular field. The field service is similary divided into four different divisions. There is no common district organisation. The offices of the different divisions are frequently located at different places. The administrative districts of the four divisions do not coincide. Yet, in practice, a farmer very often has to receive advice from all

four divisions. Due to the present organisation it is possible that overlapping, confusion and inefficiency exist in many instances. In an endeavour to avoid this risk, frequent and regular meetings are held with advisers of different services. It is recommended that steps be taken to co-ordinate the work of the different services and to provide the necessary advice in the most efficient and economic manner.

(4) More use could be made of the radio and visual aids such as film slides, pamphlets and charts. It is recommended that section be established in the Central Ministry for the purpose of preparing charts and often visual aids for all the district advisory officers.

(5) In some parts of the Netherlands farmer associations for managerial instruction are already organised and work successfully with the Advisory Services. These associations frequently provide additional funds for Advisory Work and they also assist in bringing to the attention of the Service the problems of the farming community. These organisations do very useful work and it is recommended that every effort be made to stimulate their further development.

(6) In 1940 the Agricultural Economic Research Institute was founded by one of the farmers' organisations. Since 1945 it has been an institution in which the farmers' Organisations and the Ministry of Agriculture are equally concerned. The object of the Institute is to promote research on farm economics and a wider dissemination of economic information. The Institute works in close contact with the advisers. It is recommended that this important work on farm economics be expanded and developed, particularly in its relation to Advisory Work.

(7) Need exists for the increase of home economics work with rural women. It is recommended that work on home economics with women in the home be instituted by the Advisory Service.

(8) Considerable work is already under way with older youth. The Team recommends however, that consideration be given to the establishment of agricultural, horticultural and home-making projects for farm youth, especially between the ages of 10 and 15 years. This work should be carried out in co-operation with the agricultural Advisory Service.

X

NORWAY

Duration of visit: 13th February to 26th February 1950.

Members of Visiting Team:
Mr. W. S. Gibson (United Kingdom), *Chairman;*
Mr. D. Hoctor (Ireland), *Secretary*;
Mr. A. H. Maunder (United States), *E.C.A.*

1. The study team visiting Norway discussed the organisation and operation of the Advisory Service with responsible officials in the Ministry, with the faculty of the Royal Agricultural College, and with advisory and administrative officers of the Societies which sponsor advisory work in several counties. Many teaching and research institutions in agriculture, domestic economy and forestry were contacted. Information on the agricultural economy of the country and the marketing of farm produce was obtained from the officers of the many co-operative associations which process and market the bulk of Norway's agricultural production. Farms of all sizes, including the homes of farm workers, were visited in a representative number of counties.

I. Introduction

2. Norway is a mountainous country situated between 58° and 71° North latitude. Its total land area is 30.9 million hectares of which only 1.04 million hectares (3.6 %) are devoted to agriculture. Much other land is used for summer grazing, especially in the mountains. Forest occupy some 7.5 million hectares (24.3 %). The climate is influenced markedly by the Gulf Stream making production possible well north of the Arctic Circle. Barley may ripen up to 70° and potatoes yield well at even 71° North. Rainfall varies widely from as little as 300 mm. in some of the central areas to over 2,000 mm. in areas near

the coast. In the more inland areas the ground is frozen for almost half the year, but nearer the sea there is much less variation between winter and summer temperatures. Quite steep land is cultivated because relatively little level ground exists. Reclamation and cultivation of new land is rendered very difficult because of the stone deposits from glaciers and avalanches which have contributed to the formation of most soils. New reclamation projects are, however, under way. The average holding is small and 92.6 % of the farms are under 10 hectares in area. Exluding all farms under 1/2 hectare, there remains a total of 214,378 holdings, almost all of which are owner occupied. In 1939 some 60 % of all farmers were employed part-time in other occupations. Forestry and fisheries are an important form of off-farm employment. Forestry work is of great importance since in many cases it may be considered as part of the farm employment, many holdings comprising agricultural land together with some forest.

3. Livestock husbandry is the foundation upon which the farming of the country has been established and, in addition to the cattle, horses, sheep, pigs, goats and poultry, income is often derived from the breeding of foxes and mink for the well-organised fur market. Cropping is diversified but there is a general emphasis on the production of livestock foods and it is noteworthy that potatoes occupy 6 % of the cultivated area and that horticulture is important in a great part of the country. There has been a considerable advance in level of agricultural production during the present century. The total production of food from the land was 1,827 million food units in the period 1936-1940 as compared with 1,270 million units in 1901-1905. The cropped area, however, increased by only 3.9 %, while the total output increased by 43.9 %. Livestock production increased by about 72 % in the same period. During the war production declined—particularly in the case of bacon and eggs. The volume of production is now estimated to be at about pre-war level. There is some difficulty at the moment in getting a satisfactory market for eggs. For other farm products there are no marketing difficulties. There is agricultural legislation to regulate and improve markets for milk, meat, pork, eggs, fruit, vegetables and furs. A State monopoly is obliged to purchase all native grain grown by Norwegian farmers and offered by them for sale provided that the quality is satisfactory. Farmers' co-operatives which are particularly well-organised handle nearly all the milk,

60 % of the meat and 50 % of the fruit and vegetables which come on the market.

4. According to the 1946 census the total population of Norway was 3,123,338. It is more sparsely peopled than any other country in Europe. The population is concentrated mainly in the South Eastern part of the country and along the extensive coast. Vast areas of mountainous land and forest in the north are virtually unpopulated.

5. Education has been free and compulsory for all children between the ages of 7 and 14, since 1860. A characteristic of rural education is the system of attendance on alternate days which owes its existence to the long distances that have to be travelled by many of the pupils. Many of the youth spend some time at continuation schools upon leaving the elementary schools. About 16 % of young rural people attend the Folk High Schools or other similar youth and adult schools. There are 84 such schools in the country at present. On the whole the standard of education of the people may be regarded as high.

Aims and Scope of Advisory Work

6. The following excerpts from a memorandum prepared by the Norwegian Ministry of Agriculture indicate the general aims of the Service:

> "As background for all Advisory Services stands the general aim to increase the standard of vocational knowledge in the agricultural population and make it better equipped to solve its fundamental task to the community. And above the individual aim stands the traditional goal—to preserve our inherited cultivated soil, to steadily augment it by new cultivation and to induce the soil to give twice as much as previously. It is also an important task for the Advisory Services to bind youth more closely to the soil and to country life by teaching them the great benefits the agricultural vocation gives in return for the severe demands it makes."

It is not the special responsibility of the Advisory Service to deal with social problems. The work which this Service accomplishes in home economics has, however, exerted a very important influence on the social well-being of the people.

II. Present Advisory System

7. The Royal Society for Promoting the Welfare of Norway was founded in 1809 and gradually established a series of County Agricultural Societies some of which engaged agricultural advisers. By 1860 such county advisers were employed in most of the 18 counties into which the country is divided, and some Societies had even engaged district advisers for their rural districts. At first the advisers concentrated on livestock improvement but later other problems also engaged their attention. The State took an interest in providing farm guidance and advice from about 1850 and appointed certain State Advisers in Agriculture. This movement was supplemented by a noteworthy development of co-operatives and other associations in the country and many semi-public and private societies have employed their own advisers to deal with their specific interests. Hence there has developed a service consisting of:

(I) State Advisers, paid wholly from State funds.
(II) County Advisers, financed in equal proportions by the State and by the County.
(III) District Advisers whose salaries and expenses are met, one half by the State, one fourth by the County and one fourth by the district which they are employed.
(IV) Advisers employed by Societies.

8. An Under-Secretary is responsible to the Minister of Agriculture for the executive work of the Ministry. There are two executive chiefs who take responsibility for the various branches of work and four Directors of the services for Agriculture, Forestry, Veterinary Work, Survey and Rehabilitation. The Director for Agriculture is responsible for general agriculture, animal husbandry, dairying, horticulture, rural domestic economy, agricultural education, research and for advisory work. It is convenient to divide the officers of the advisory service into two groups:

(I) *The State Service*, at present comprising:
7 Advisers in Animal Husbandry, and 4 Assistants;
7 Advisers in Dairying;
1 Adviser in Horticulture;
1 Adviser in Drainage and Irrigation;
1 Adviser in Milk Recording;
1 Adviser in Smaller Farm Industries;

1 Adviser in Agricultural Education;
1 Adviser in Domestic Science;
1 State entomologist;
1 State mycologist;
1 State biologist on weeds;
3 Agricultural engineers.

These officers supervise Government schemes for the development of agriculture and provide guidance for the staffs employed in the counties. To a limited extent they make individual advisory visits to farmers.

(II) *County and District Service:*

In each of the 18 counties there is a County Society of Agriculture which is administered by a member of the County Council assisted by two farmers and two small-holders. These committees work through a Chief of Agriculture who is a State employee and have an Advisory staff which includes specialists dealing with animal husbandry, crop husbandry, grassland, horticulture, farm buildings and small-scale farming.

The total county staff (paid in equal proportions by the State and by the County) is:

County Agricultural Advisers	65
County Horticultural Advisers	18
Assistants to above Advisers	53
Total . . .	136

The 18 counties are sub-divided into 680 Rural Districts, some of which employ District Advisers (paid half by the State, one fourth by the county and one fourth by the district). One hundred and seventy-two District Advisers are at present employed in this way. The County and District Advisers work largely by means of farm visits, lectures and lecture courses, but include in their duties the administration of such government schemes as land reclamation and colonisation. In each county there are two State-paid Domestic Science Instructresses who work under the direction of the county and district committees. They give lectures, courses and demonstrations to groups as well as advice to individuals in the home, and their advisory aids include films and transportable kitchen equipment. Excluding the 30 officers in the State Service who have little time for direct advisory work and the 18 Chiefs of Agriculture, there are 240 County and District Advisers for the 214,378 holdings, or an average of 722 farms for each adviser. There are approximately 6,000 farms for each adviser in domestic science.

FINANCING

9. From the total state budget for 1950-1951 of 2,553,000,000 Kroner the sum allotted for agriculture, forestry, veterinary services, etc. is 85,052,700 Kroner. This figure includes grants for agricultural schools, training schools, and the Royal Agricultural College. The Government contribution towards the cost of the agricultural Advisory Service is 3.3 million Kroner and the contribution from the Counties and Districts amounts to a further 2 million Kroner. Salaries of the State, County and District Advisers are standardised to the Civil Service Scales and the officers participate in the same superannuation scheme.

PREPARATORY TRAINING AND QUALIFICATIONS

10. Personnel to be absorbed into the Advisory Service are trained at one of the following establishments:

(i) The Royal College of Agriculture, founded at Ås in 1859. Degree courses are conducted of three years duration. Before a student is enrolled he must have attended a secondary school or passed a special examination the subjects including Norwegian, English, German and Mathematics. In practice most applicants have passed a University entrance examination. In addition to this requirement, proof must be furnished of attendance at an agricultural school for one year and of at least two years practical training on an approved farm.

(ii) The State Training School for Teachers to Smallholders, founded at Sem in Asker in 1914. Here a diploma is granted after a course of two years. Students must have pre-entry examination and practical experience similar to that required by the Royal College of Agriculture.

(iii) The State Training School for Teachers in Domestic Science, founded at Stabekk, Oslo, in 1908. The diploma course is of 2 years' duration.

The College of Agriculture makes available each year approximately 30 degree students in agriculture, 8 graduates in dairying, and 8 to 10 in land measurement. In addition, every alternate year 25 to 30 graduates are made available in forestry and 10-15 in horticulture. The School for Teachers to Smallholders provides about 20 trained workers each year in addition to approximately 7 trained workers in handicrafts. The School for Teachers in Domestic Science accepts 32 students each year

for a 2-year course. Vocational training in agriculture and domestic science is also given at 39 agricultural schools, 6 smallholders schools, 5 dairying schools, 8 horticultural schools, 4 forestry schools and 41 rural domestic economy schools. It is estimated that one fourth of the farmers in Norway have received some agricultural education through schools, many of which schools have been established over a long period of years.

In-service Training

11. Courses designed to keep Advisers informed of advances in technical agriculture are held at indefinite intervals. Reports from experimental stations and from the research departments of the Royal Agricultural College and other institutions are provided for Advisory officers.

Advisory Methods

12. Advisory visits are made principally to such farmers as request them and much of the officers' time is occupied in this way. Many lectures are delivered each season to agricultural organisations and short courses are also arranged. Very little experimental work is carried out by advisers and little attention is given to demonstrations. Films and exhibits are employed as instructional media and advisers occasionally contribute articles to local newspapers. Many queries from farmers are dealt with by telephone or letter. The work of domestic economy advisers follows the same general lines as that of the agricultural advisers. Courses are given in subjects such as cookery and domestic management. Much use is made of lectures and the advisers have transportable equipment. Advice is also given to individuals in the home. The agricultural advisers co-operate with the Norwegian 4H Clubs and the Norwegian Country Youths' Association by giving lectures, conducting courses and assisting with competitions. Similarly the domestic economy advisers assist the Norwegian Country Women's Associations in their educational activities. The radio is utilised to a limited extent for giving information on farming matters. The use of films is developing and the Ministry of Agriculture has established a special Film and Picture Division in charge of an agricultural officer who is directly responsible to the Director-General of Agriculture. There are, at present, in production some 20 agricultural films all of which, with one exception, are sound films. In 1949 there were 2,113 showings of agricultural

films with an attendance of 122,000 people. The Film and Picture Division also produces slides, arranges the hiring of films and projectors and conducts periodic courses on the use of films, and film projectors.

Programmes and Programme Planning

13. Many organisations and local societies conduct programmes of an educational nature which might well be considered as the function of the Advisory Service. Consequently there is some duplication of services on the one hand and a lack of services on the other which a better understanding with these groups and the direction of advisory work by one agency should go a long way to remedy. It is recommended that regular planning meetings should be held between the farmers' organisations, the local advisers and the specialists. At such meetings problems could be defined, methods of solution considered, and responsibility for the work delegated according to an agreed plan.

Research and Research Relationship

14. Research Stations are widespread. The chief research centres are as follows:

Institution	Subject(s) of Work
1. Agricultural Economic Institute, Oslo.	Farm management and economic problems.[1]
2. Royal Agricultural College of Norway, Vollebekk.	Soils, crops, animal husbandry, dairying, horticulture, forestry.
3. Veterinary College, Oslo.	Animal diseases.
4. Veterinary Institute, Oslo.	Bacteriology and pathology of domestic animals.
5. Agricultural Technical Institute, Vollebekk.	Testing and construction of machines and tools.
6. School for Teachers to Smallholders, Hvalstad.	Pigs, poultry, sheep, goats, bees.
7. State Plant Protection Institute, Oslo.	Plant pathology; crop diseases and weeds, control of insecticides and fungicides.

State Experimental Stations in Plant Husbandry are located at: Møystad, Løken, Forus, Fureneset, Voll, Vagønes, Holt.

State Experimental Stations in Horticulture are located at: Njos (Fruit and vegetables); Kvithamar (Vegetables); Landvik (Vegetables).

[1] This Institute has three district offices situated at Kristiansand, Bergen and Bodö, in each of which there are three officers. Nine other officers work as advisers at county level in various parts of the country.

Other Experimental Stations: Experimental Station, Dal Asker (Nutrition of fur-bearing animals); Experimental Farm, Hodne (Sheep Diseases); Experimental Farm, Apelsvoll (Grassland); Norwegian Peat Society, Møre (Bog cultivation); "Nyjord" Farm, Smøla (Bog cultivation); State Grain Corporation, Oslo (Tests with home-grown grain); Forest research Institute, Vollebekk (Forestry); Forest Research Station, Bergen (Forestry); Research Institute, Stabekk (Home economics and nutrition).

Reports on these stations have been included in the annual report of the Director of Agriculture and distributed free of charge to all advisers and schools. Steps have now been taken for the reports to be combined in one monthly publication.

III. Evaluation and Suggestions for Further Developments

15. (1) The visiting team was impressed by the joint effort being made to solve the country's agricultural problems by the farmers working with their organisations on the one hand and the research and advisory workers on the other. The relative emphasis now given to teaching, research and advisory work seems well balanced and the working relationship between all these groups is excellent. Since, however, 92.6 % of all the agricultural holdings in Norway are under 10 hectares in area, adequate advice of the highest standard to small holders is of the utmost importance. At present nearly 50 % of the county and district advisers do not hold a college degree and have not received the benefit of higher agricultural training. In the opinion of the team it should be the ultimate aim of the Government to provide for the needs of the smallholder an advisory service of the highest quality.

(2) The instruction in the technique of advisory teaching provided for those entering the service is somewhat weak. It is recommended that this training be strengthened.

(3) It is highly desirable that refresher courses be provided for advisory workers and more opportunity given, through visits to research stations, for contacts and discussions with research workers.

(4) It is strongly recommended that a uniform advisory service be provided for all farming communities. At present all districts are not equally served, and in some districts there is no district adviser. This is partly due to lack of central funds for the national advisory service and to a lack of local financial support in many districts.

(5) Although some work in farm planning and farm

management is done at the Institute for Agricultural Economics, little work in these subjects is carried on by the advisory service, with the exception of that relating to colonisation projects. This valuable work should be expanded by the advisory service, and attention should also be devoted to the "farm forest" where forest is an integral part of the farm holding.

(6) At present advisory workers visit only those who request advice. An increased use of group and mass methods of education should be made in order to ensure more contacts. The Radio can be used effectively for this purpose if extra programme time could be secured.

(7) The Information Service provided by the Ministry is doing excellent work. It is recommended that this service be expanded and that more use be made of mass media.

(8) While much excellent work is being done by the experimental stations and advisers in connection with demonstration work, a greater use of the demonstration method is recommended for the purpose of reaching large groups and communities.

(9) It is recommended that increased support be given to the 4H Clubs. These clubs exert a great influence in developing greater interest and pride in agriculture and home-making as professions and assist in the practical out-of-school training of boys and girls up to the age of 20.

(10) The team wishes to re-emphasise the remarks made in the paragraph dealing with programmes and programme planning (para. 14). It is hoped that consideration will be given to the recommendations made.

(11) More research is needed on the mechanisation of small farms and on the economical construction and reconstruction of farm buildings. Such research is needed by the advisory staff to enable them to discharge efficiently their duties relating to problems of farm mechanisation and building construction.

XI

PORTUGAL

Duration of visit: 11th March 1950 to 26th March 1950.

Members of Visiting Team:

Mr. G. R. Ytterborn (Sweden), *Chairman and Secretary*;
Mr. A. L. Deering (United States), *E.C.A.;*
Mr. P. Hudson, Director of the Agricultural Division of the E.C.A. Mission to Portugal, participated in the study but not in the preparation of the report.

1. The team visiting Portugal had the opportunity to meet with the Minister of Economy, the Under-Secretary of Agriculture and a number of officials in the Sub-Secretariat of Agriculture. These officials provided information relating to Portuguese agriculture and advisory work. Visits were made to the Agriculture and Veterinary College, the National Agricultural Research Institute, the National Livestock Breeding Institute, the Laboratory of Veterinary Pathology and one agricultural school, where information was obtained with regard to education and research. Advisory work and its organisation was studied in two main regions. Farmers' Organisations, Corporative Organisations and semi-State co-ordinating bodies were visited to obtain the views of their representatives.

I. Introduction

2. Continental Portugal has an area of some 33,000 square miles of which 37 per cent is devoted to agriculture and horticulture and 28 per cent to forest lands. For agricultural purposes Portugal may be divided into three main regions, namely the northern region, the region south of the Tagus river and the region of Algarvo. The northern region is characterised by a moist climate and abundant water supplies. Farms are medium

sized to small and the principal crops are corn in the west, rye in the east and grapes for Port wine in the Douro valley. Large estates characterise the region south of the Tagus river where wheat, barley, oats, and cork are the main products. The soil is poor, rainfall irregular and summer heat excessive. These factors have contributed to the growth of large estates which are extensively cultivated. The region of Algarvo lies to the south and is famous for its horticultural products including oranges, figs and almonds.

3. The economy of Portugal is based to a great extent on agriculture. Before the last war the national income was estimated at 7 billion escudos, of which 5 billion escudos were derived from agriculture. In 1948, 82 per cent of the total exports were classified as agricultural products or of agricultural origin. In 1950 the total population of Portugal was 8.6 million and approximately 46 per cent of these gainfully employed were engaged in agricultural production. Of the total land area some 3.4 million hectares are under cultivation, 2.5 million hectares under forest, and approximately 1.5 million hectares under permanent pasture. There are 1.35 million farms, only 50,000 of which exceed 5 hectares in area. In the region south of the Tagus river there are some very large farms, the largest of which has an area of some 17,000 hectares. There is a very great contrast between the farming methods practised in various parts of the country—variations from the most modern to the most primitive being evident. On the whole the level of production is rather low, due largely to climatic conditions and infertile soil. Lack of fertiliser and primitive farming methods have been contributing factors. Soil erosion still presents a serious problem in many areas despite the fact that terracing has been practised in Portugal for many years. There is great need for irrigation in many areas.

4. Agricultural products are marketed mainly through corporative organisations. The National Federation of Wheat producers, a corporative organisation, takes care of the marketing of wheat and most of the wine is marketed through similar corporative organisations or through co-operatives. Credit, long and short term, is provided to farmers through governmental or semi-governmental channels. The interest rate depends on the nature of the lean and is comparatively low. Savings Banks advance loans up to 50 per cent of the value of property at an interest rate of 2.3-3 per cent. Loans from the Home Colon-

isation Service for land development and settlement are made at a rate of 2 per cent on up to 90 per cent of the improvement value of the holding. Production credit is made available usually through co-ordinating boards (such as the National Wine Board and the National Fruit Board) and through corporative organisations as the National Federation of Weat Producers. Portugal is a corporative State and the corporative organisations and other semi-State bodies play an important role in the economic and social life of the people. In view of their importance in advisory work mention must be made of such corporative bodies as:

(*a*) Farmers' Guilds which are found widely in certain regions the membership of which comprises landowners and farmers. The objectives of these Farmers' Guilds include the promotion of co-operation, the defense of farmers' legitimate interests, the co-operative marketing of farm products and the purchase of farm requisites. The Farmers' Guilds are often grouped in provincial or regional Federations.

(*b*) Co-ordinating bodies which serve as links between the State and the Corporative Organisations. These co-ordinating bodies are semi-State bodies which, though responsible for their own activities and administration, are directly dependent on the various Ministries from whom they receive their instructions. There are three groups of co-ordinating bodies (1) Regulatory Commissions for the control of various branches of foreign trade (2) National Boards for the development, improvement and co-ordination of production and trade activities and (3) National institutes for co-ordination and production for the export trade.

(*c*) "Houses of the People" are social co-operative bodies of rural workers who are not members of Farmers' Guilds. Members must reside in the "House" district, be more than eighteen years of ago and not be members of any corporative organisation. The objectives of the "Houses of the People" are to meet the social requirements of the rural working population, including protection and assistance in case of illness, unemployment, disability and old age; the provision of child and adult education and recreation; the promotion of co-operation in housing; and the provision of communications, adequate health services and water supplies.

The general educational level is comparatively low. Although elementary education is compulsery for 4 to 5 year period there are a considerable number of children who do not attend the schools. Only 62 per cent of the children of school age were enrolled in public schools in 1936-1937. Lack of adequate educational facilities and the necessity for child labour owing to economic conditions are contributory causes to the low school attendance.

Aims and Scope of Present Advisory Work

5. The aim of advisory work in Portugal is to assist farmers in technical and economic problems. These include the provision of horticultural planting stock; seed-testing; fertiliser purchase; the operation of pruning schools; assistance in the extension of credit; livestock-improvement; and advice on improved farming methods. The objectives are mainly concerned with technical and economic farm problems and as yet questions relating to social and rural life are not included.

II. Present Advisory System

6. At present there is no special Ministry for Agriculture in the Portuguese Government. The problems in agriculture are the responsibility of a Sub-Secretariat of the Ministry of Economy. This sub-secretariat is directed by the Under-Secretary for Agriculture and it comprises four departments, namely; a department for general agriculture including horticulture, a department for livestock and veterinary science, a department for forestry, and a department for home colonisation. The Department for General Agriculture is responsible for research, the advisory services and all questions concerning the production of agricultural and horticultural crops. In addition to the Director General there is one Inspector to supervise and co-ordinate the work. Research and advisory work relating to animal husbandry are dealt with by the Veterinary Department, which Department also deals with the technical and economic problems relating to livestock production. The Department for General Agriculture comprises seven sections dealing with grain crops; phytopathology; fruit and vegetables; vineyards and wine-making; the collecting, interpreting and publishing of economic and technical data; corporative organisations; and administration. The crop section, the phytopathological section,

the fruit and vegetables section and the vineyard and wine-making section carry out advisory work through the regional advisory services. Practically all technicians are engineers in agriculture. There are regional Advisory Services in each of the 15 counties in Portugal. The regional staff comprises a director and 6 to 12 technicians, who are responsible to the sections of the Department of Agriculture for the work. There are seven special inspection and control services in the wine producing areas. Advisory work is also carried on by the corporative organisations and the co-ordinating bodies already referred to. At present these organisations and bodies have an advisory staff of 44 agriculturists holding the College diploma and 110 with a lower training. Some advisers are also employed by the farmers guilds and co-operatives. There are three sections in the Veterinary Department dealing with animal health and hygiene, animal husbandry and research, and information. The work is conducted by 24 veterinary officers, each of whom has a subordinate staff of 1 to 4 qualified veterinary surgeons. The veterinary officers also direct the work of 248 municipal veterinarians and engage in advisory work relating to livestock health and general animal husbandry problems.

Research

7. There are 3 research centres under the Director General of Agriculture, namely the National Agricultural Research Institute at Sacavom, the Plant Breeding Station at Elvas and the Agricultural Laboratory at Lisbon. The Research Institute comprises eleven departments covering all the important fields of agriculture. In addition there are institutes for seedtesting and machine-testing, a bee-keeping station, a dairy station and two stations for fruit production. Under the section for animal health there is a Central Laboratory of Veterinary Pathology at Lisbon and two Veterinary Laboratories at Oporto and Evera. These laboratories produce serum and vaccines, make clinical analyses, and carry out the analysis of feeding stuffs and food products of animal origin. The National Breeding Institute at Santarem, the Stallion Station at Alter and the Breeding Stations at Lisbon and Miranda do Duoro, are responsible to the section for Animal Husbandry in the Ministry. These institutions carry out research in breeding and related subjects.

Agricultural Education

8. Agricultural education is the responsibility of the Ministry of Education. The College of Agriculture is part of the Technical University of Lisbon. This College has a staff of 41 professors and lecturers to deal with 650 students. The courses for the degrees of Engineer in Agriculture and Engineer in Forestry cover a period of 5 years class and laboratory work and one or two years on original research work at the College or one of the research stations. Knowledge of practical agriculture is not essential on entering the College, but much practical farm work is included in the laboratory training. All important agricultural and horticultural subjects are covered in the courses. The veterinary officers of the Ministry are educated at the Veterinary College which is part of the Technical University of Lisbon. Besides pure veterinary subjects the course includes instruction in the field of animal husbandry. Both the College of Agriculture and the Veterinary College are well equipped with laboratories and other facilities. There are five agricultural schools, two of which provide four year courses in vocational training. Approximately 230 students are enrolled in these two schools, the purpose of which is to provide stewards and managers for the large estates and skilled farm operators. The other three schools are secondary agricultural schools and they are attended at the present time by approximately 400 students. A seven year course in theoretical and practical agriculture is provided, the pupils being recruited mainly from among farm managers and the lower ranks of the advisory personnel. Centres for formal education in rural areas are organised by the Mother Foundation for National Education. These centres provide training in the management of the home and the care of children. As yet this work has not been developed very widely.

Financing

9. The agricultural budget of Portugal amounts to 108 million escudos. The Ministry of Economy has, however, an extraordinary budget of 67 million escudos, which may be devoted in part to agriculture. In 1949 some 10 million escudos were allocated towards the salaries of advisory personnel and 3.5 million escudos for allowances and other expenses. The figure for expenditure in the field of Animal Husbandry by the Veterinary Service is not available since it is impossible to separate it from

the monies devoted to the other activities of that service. The information on governmental expenditure in agriculture is thus somewhat incomplete but it is evident that public provision for agriculture and in particular for advisory work is comparatively meagre when compared with the important role agriculture plays in the country's economy.

Personnel in Advisory Service

10. In the 15 Regional Advisory Services there are 285 advisory workers. Of this staff 185 hold college degrees while the remaining 100 have received a training of a lower standard. The veterinary staff, comprising 300 veterinarians, in addition to their work on animal health and the inspection of animal products are engaged in advisory work relating to the technical and economical aspects of animal husbandry. The participation of the veterinary staff in advisory work is a recent development, but little advisory work has so far been initiated on animal feeding and milk-recording.

Salaries

11. The salary scale for advisory personnel is as follows:

		Escudos per month
Agricultural College Degree	1st class	4,950
	2nd class	4,050
	3rd class	2,880
Agricultural Secondary School Certificate	Principal	2,700
	1st class	2,340
	2nd class	2,160
	3rd class	1,980
Agricultural Primary School Certificate	1st class	1,080
	2nd class	990
Veterinary College Degree	1st class	4,050
	2nd class	3,240
	3rd class	2,700

These salaries appear to be comparable with those of similar rank and training in the Civil Service.

Programmes and Programme Planning

12. The advisory programme includes land use; farm machinery; soil fertility; seed production, testing, grading and certification; dry farming and irrigation; bee-keeping; and grafting and pruning. Special courses are provided in subjects

such as pruning. Problems of particular interest to localities are investigated at the regional experiment farms which retain an advisory officer on the staff who has specialised to some degree. In general the field advisers have much routine clerical work to prepare for the Sub-Secretariat in the Ministry and they have also duties to perform in connection with pest and disease control.

Advisory Methods

13. Advisory work among individual farmers is in the main carried out in connection with the control and inspection service due to the limited staff employed in the Advisory Service. Advisory methods vary. Demonstration meetings are frequently held at experimental farms and plots. Courses are given in subjects such as grafting and pruning for the training of farmers and farm workers. Since 1937, 29 different agricultural films have been produced and these have been widely used. During the past ten years, nearly 2 million leaflets, advisory sheets and posters were distributed among farmers and farm workers. Specimens of these examined by the visiting team were excellent.

Research Relations

14. The research institutes and the Advisory Service are subject to the same administrative direction. The personnel of the research institutes also serve as advisers, thus providing a link between the research institutes and the ordinary advisers. The time available to such research officers for advisory work is however very limited and thus the contacts provided to the field workers are too meagre.

III. Evaluation and Suggestions for Further Developments

15. In recent years Portugal has made substantial progress in the improvement of its agricultural institutions and services. Much advance has been made in college education and in the provision of research institutes. There is also some general improvement in the basic education of the farm population, though illiteracy still exists. Organisations such as the "House of the People" have initiated work on social problems. A beginning has been made in the provision of an Advisory Service for farmers and farm workers. These efforts to raise the efficiency of agriculture, to improve the general standard of education among farm people, and to improve their social conditions are of the utmost

importance for the well-being of Portugal in the future. The following recommendations are made with the object of strengthening the programme for rural development and to assist the Advisory Service in making its contribution to the overall objectives of such a programme.

(1) In Portugal at present 2 sections of the Central Ministry are interested in agricultural advisory work. The first is the Agricultural Department which deals with crop husbandry, including horticulture and viticulture, and the second is the Veterinary Department staffed with veterinarians only which deals with animal husbandry, veterinary medicine, animal health, and food inspection. This organisation of advisory work is rather unusual since in other countries advisory work on the technical and economic aspects of animal husbandry is carried out by qualified agricultural technicians, and usually forms part of the general advisory work. It is difficult to understand why advisory work on animal husbandry should be entirely separated from the production of grass and other forage crops, and in any case the adviser in animal husbandry should essentially have an adequate basic training in agricultural subjects including agronomy and farm management. This dual system has apparently led to some inefficiency as at present it is evident that little progress has been made in the fields of milk production or animal feeding. It seems essential that some change of organisation should be made in order to bring about greater efficiency. It is recommended that consideration be given to the solution of this problem in one of two different ways. The first would be the establishment of close co-operation between the officers of the regional Advisory Service and the regional veterinary officers and to provide the latter with a more adequate training in basic agricultural subjects such as agronomy and farm management. The second and far more desirable solution would be to enlarge the present advisory staff through the appointment of well educated agricultural technicians specially trained in the technical and economic problems of animal husbandry. Veterinary officers could in that event, as at present in other European countries, devote their time to animal health and hygiene and the inspection of animal products. The solution of this problem is a most urgent matter since 35 per cent of the total agricultural production of Portugal is of animal origin.

(2) The adoption of the last recommendation would allow the Advisory Services in agriculture to come under the direction

of one government department, namely, the Department of General Agriculture. A further development, however, is desirable, and that is that greater co-ordination be established between the 4 or 5 sections comprising the Department of General Agriculture and the establishment of a new section to deal with advisory work. The provision of this new section to supervise advisory activities together with the co-ordination of the work of the various sections of the Department is strongly recommended.

(3) Important advisory work in many fields is at present carried out by the Farmers' Guilds, Co-operative Organisations and the Co-ordinating Bodies. These organisations have provided laboratories with specially trained personnel who have in some cases initiated advisory work with farmers. It is strongly recommended that steps be taken to achieve greater co-ordination in the work done by these advisers and by the advisers in the governmental service.

(4) The research institutes in agronomy and the regional Advisory Services, as already stated, are controlled by the Department of Agriculture. Research workers at the various research institutes and stations do some specialist advisory work during a limited proportion of their time. This provides a link between the research stations and the regional advisers but the time available to the research specialists for such work is rather meagre. In consequence, the results obtained at the research institutes do not reach farmers as rapidly as is desirable and on the other hand farmers problems are not channelled to the research stations efficiently. The Visiting Team recommends that consideration be given to the appointment of suitable specialist personnel who would serve as a link between the research institutes and the field advisory officers. If this were done the research officials could devote their full time to the solution of the problems of farmers.

(5) In Portugal at the present time the Ministry of Education is responsible for agricultural education of all types, while the Ministry of Economics is responsible for agricultural research and advisory work. This situation gives rise to certain difficulties, including a lack of co-operation between the agricultural schools and the Advisory Services and a lack of co-operation between research institutes and the Agricultural College. It is recommended that consideration be given to the establishment of greater co-operation between the agricultural schools, the research stations, and the Advisory Services. The necessary co-

ordination between these activities might best be achieved by making the three branches the responsibility of the same Ministry since the common goal of all services is the same.

(6) While the College of Agriculture provides a good basic education and training in applied agricultural subjects, the training for future advisory workers has been neglected. It is recommended that suitable training be provided in advisory methods and related subjects for the benefit of future advisory workers.

(7) In order to keep advisers abreast of new developments, it is recommended that refresher courses be provided periodically in selected subjects. The exchange of views at such refresher courses would prove of great benefit to both the staffs of the research institutes and the advisers attending the courses.

(8) At the present time the standard of general education among farm youth is unsatisfactory and the lack of provision for additional education and training renders it difficult for the Advisory Service to achieve the best results. The Visiting Team recommends that serious consideration be given to achieving a substantial improvement in the educational level of the farm youth, though the following measures:

(*a*) The improvement of the curriculum in the elementary schools and the rigid enforcement of the compulsory attendance regulations.

(*b*) By the provisions, for boys who have completed their elementary school education, of winter courses in the villages by the regional Advisory Services. These courses might include lectures, training in home and group projects, instruction in the keeping of farm accounts, excursions, and the provision of bulletins and circulars.

(*c*) The provision of similar winter courses adapted to the needs of farm girls.

(9) At present little advisory work is organised in home economics for farmers' wives and there are no schools in home economics for farm girls. Since women contribute so largely to the comfort and welfare of the rural family and home it is recommended that advisory work with farm women be initiated at the earliest possible time.

(10) Co-operative organisations and co-ordinating bodies are doing valuable work in the field of agricultural economics and marketing. On the other hand field advisers give assistance mainly in the technical field. It is recommended that research work in farm economics, marketing, and farm management be

further extended and developed and that the results obtained be used extensively by the Advisory Service for the benefit of farmers.

(11) It is recommended that the advisory workers should give more attention to the problems of soil erosion and irrigation with the object of directing farmers' interest towards these matters and providing the latest methods for their solution.

(12) In the regional Advisory Services of Portugal, there are altogether 285 advisers and since there are in all 1.38 million farmers, there is an average of 1 adviser to each 5,000 farmers. Even if generous allowances are made for the work in animal husbandry carried out by the veterinary officers and the advisory work done by other agencies, there are approximately 3,000 farmers to each adviser. It is obvious that the number of advisers is insufficient to meet the needs of an efficient Advisory Service for the farm population and it is recommended that the number of advisory workers be increased as soon as circumstances permit.

XII

SWEDEN

Duration of visit: from 27th February, 1950 to 11th March, 1950.

Members of Visiting Team:

Mr. W. S. Gibson (United Kingdom), *Chairman*;
Mr. D. Hoctor (Ireland), *Secretary*;
Mr. A. H. Maunder (United States), *E. C. A.*;
Mr. K. Petrich (Germany).

1. The team visiting Sweden received information on organisation of its Advisory Service from the Ministry of Agriculture, from the Royal Board of Agriculture and from the Provincial Boards and Societies of Agriculture and Forestry who are responsible for the local administration of advisory work. The team conferred with officers of the Federation of Swedish Farmers' Associations and with the Farmers' Union. Visits were made to many schools and research centres dealing with agriculture, domestic economy and forestry. The centres visited included the Royal Agricultural College at Ultuna, the Agriculture Dairy and Horticulture Institute at Alnarp, the Royal College of Forestry, the School of Agricultural Domestic Science, the Home Research Institute and the Swedish Seed Association at Svalov. A limited number of farms were visited.

I. Introduction

2. The land area of Sweden is over 41 million hectares. Of this area 9 % is arable land, 2.3 % pasture and 54 % forest. The country extends from 54° to 69° N and exhibits wide variations of soil and climate. The warming influence of the Gulf Stream makes the climatic conditions more favourable for agri-

culture than those of many other regions of similar latitude. In the southern part of the country really severe weather may last for approximately two months during the winter. In the extreme north, however, the mean temperature is below freezing point for the greater part of the year. The annual rainfall in the East of Sweden ranges from 400 mm. to 600 mm. In western districts the rainfall may be somewhat higher than 600 mm. One of the handicaps to tillage farming is that a high proportion of the rain falls in late summer and early autumn.

3. Sweden is a land of smallholdings. Out of the 414.441 agricultural holdings only 8.5 % are over 20 hectares in area, while over 28.5 % are under 2 hectares in extent. In many districts the farms are greatly fragmented and the fields are small. About 80 % of the holdings are owned by the occupiers. The Government has embarked on a rationalisation programme which includes a more economic redistribution of the scattered land to form larger and more compact units. The aim of this redistribution is especially to form a larger number of units with 10-20 hectares arable land. Mixed farming involving the growing of tillage crops and the production of livestock is general throughout the country. The density of tillage is highest in the South. Thus in certain parts of the Skane-Halland region as much as 80 % of the land is under tillage and a wide variety of crops, including wheat, oats, barley, rye, sugar-beet, fodder-beet, potatoes, turnips and oil-producing crops, is grown. In the north of the country conditions are much less suitable for tillage farming and there farming is directed mainly to the production of cattle and dairy produce. The consumption of vegetables and fruits has been increasing in recent times and consequently horticulture is of growing importance. Although a good proportion of the land is mediocre in quality, Swedish levels of production for crops and stock compare favourably with those of most European countries. Farming and forestry are closely allied. About one-half the total forest area is owned by farmers, while the other half is owned in almost equal proportions by the State and the commercial Lumber Companies. Many smallholders supplement their incomes either from some forest land owned by themselves or by working for *forest* owners during the winter season. In the coastal districts fishing also helps to swell the smallholders' income.

4. The population of Sweden is 6.9 million, about 21 % of which derive their livelihood from agriculture. The northern

half of the country is sparsely populated, having only about 12 % of the total population. Although the total population has increased by about 35 % over the past fifty years, the agricultural population has declined by 35 % over the same period. The industries of the country are well developed and about 38 % of the people derive their living from industries and crafts. Timber, timber products, (e. g. pulp, paper, wall-board, etc.) iron, steel, metallic ores, ships and machinery, represent a considerable proportion of the country's exports. Coal, oil, textiles, machinery, horticultural produce, coffee, fertilisers and some animal feeding stuffs occupy places in the import list. Intensive exploitation of water power helps to compensate for the country's lack of adequate supplies of coal. The relatively large non-agricultural population provides a very substantial home-market for agricultural produce. At the present time the country is largely self-supporting in food. The view was expressed to the team that the country may in the near future have some difficulty in finding markets for certain items of surplus food. A surplus of cheese is actually a problem at the present time.

5. The farmers are particularly well-organised to deal with any marketing problems that may arise. The co-operative movement is widespread throughout the whole country and is in a remarkably strong position. Co-operative concerns handle more than 95 % of the milk delivered to dairies, 70 % of the animals for slaughter and 65 % of the cereals and eggs. Nearly every farmer who has anything to sell is a member of one or more societies. The Federation of Swedish Farmers' Associations does not confine its activities to the business affairs of its members. It has also organised comprehensive educational and information services for the rural population.

6. Elementary education has been compulsory in Sweden for over a century. Attendance at a school is compulsory from the age of seven years for a period of seven years plus a part-time continuation period of one to two years, or for a continuous period of eight years. In certain rural districts there are continuation schools which provide instruction in agriculture mainly of a theoretical nature for those who have already spent seven years at an elementary school. The full secondary school course lasts until the age of 19 years and about 5,000 pupils complete this course each year. There are 59 Folk High Schools (or People's Colleges) which enroll annually about 7,000 pupils from the age of eighteen years upwards. The aim of the school

system is to provide a good general education and to turn out good citizens.

Aims and Scope of Present Advisory Service

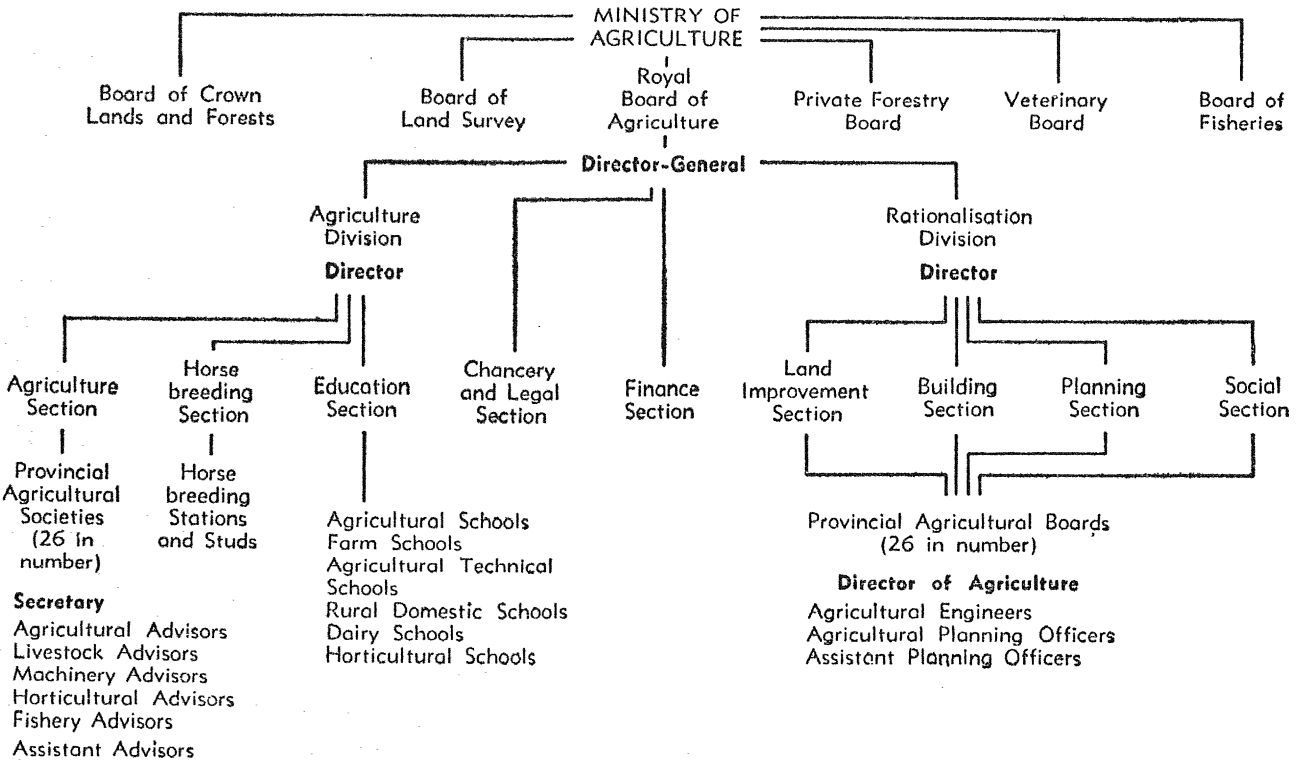
7. The aims and scope of advisory work in Sweden are synonymous with the objects of the agricultural societies which administer that work. They are—"to promote the practice of agriculture and its allied occupations including horticulture, fisheries and domestic industries". Activities "include, among other things, educational courses, lectures, awards, demonstrations, competitions, research activities, study tours and a personal information service for private farmers through the employees of the Society often in connection with difficult kinds of planning and improvement measures. The employees who are principally concerned with this activity are advisers and instructors".

II. Present Advisory System

8. In 1811 the Royal Agricultural Academy was established. This institution, which had as its main objective the development of agriculture and its related industries, encouraged the land owners and leading farmers to come together in each province with a view to establishing Provincial Agricultural Societies, the main functions of which were to be the dissemination of new ideas and new techniques amongst farmers. The first agricultural school was opened in 1834 and agricultural institutes for the training of agricultural teachers, advisers, farm managers and farmers were founded at Ultuna in 1848 and at Alnarp in 1862. Early efforts in educational and advisery work were due to the initiaitve of the societies established by the more enlightened farmers themselves and not to any governmental action. About the middle of the last century the State began to take a greater interest in agricultural education and grants on a modest scale were given to the schools and Provincial Agricultural Societies. Additional agricultural schools were opened and towards the end of the century prize schemes were initiated by the Government for livestock and small farms. In the present century many new institutes and schools (including schools of rural domestic economy) have come into existence and the older institutes have been modernised to a considerable extent. The advisory work done by the Provincial Agricultural Societies has

ORGANISATION OF EXISTING ADVISORY SERVICE

The Chart given beneath indicates how the official Advisory Services are organised and shows their relationship to the Ministry of Agriculture:



also grown considerably. In 1947 legislation was passed setting up new bodies known as Provincial Agricultural Boards. These new bodies, which took the place of older Boards dealing with problems of land re-settlement and home ownership, have been given certain administrative duties formerly carried out by the Societies. The State grants to the Societies have been considerably increased and in consequence the Royal Board of Agriculture exercises more supervision over the Societies and their staffs than formerly.

9. The Royal Board of Agriculture, which is responsible for the development of agriculture, is an autonomous body of seven members. These members comprise the Director-General, who is Chairman, the two Directors, one of whom acts as Vice-Chairman, and four members appointed by the King on the recommendation of the Minister for Agriculture. The Royal Board exercises supervision over the Provincial Boards of Agriculture, the Provincial Societies of Agriculture and the various State-aided institutions for agricultural education, with the exception of the Royal Agricultural College and the National Research Centre. It will be observed from the Organisation chart that the Royal Board works mainly through two divisions, namely the Rationalisation Division and the Agriculture Division.

10. The Rationalisation Division deals with matters such as land reclamation, land drainage, pasture improvement, farm buildings, the provision of credit for farmers, the creation of economic holdings and general rural planning. Much of the work of this division is largely of an administrative rather than an advisory character. The Division operates mainly through the Provincial Boards of Agriculture, each of which consists of seven members including the Chairman and two members nominated by the Minister for Agriculture and two members elected by the Provincial Agricultural Society, with the Director of Agriculture and the Secretary of the Provincial Agricultural Society as ex-officio members. The officers of a Provincial Board include the Director, Drainage Engineers, Agricultural Planning Officers, Assistant Planning Officers and clerical staff. The total technical staff of the Provincial Boards of Agriculture consists of 188 college graduates and 209 non-graduates.

11. The Agriculture Division has separate sections dealing with Agriculture, Horse-breeding and Education (i. e. with the various types of Agricultural, Horticultural and Rural Domestic Economy Schools). The Section responsible for agricultural

education carries out its advisory functions through the Provincial Agricultural Societies, which farmers may join on paying a small subscription. The business of the Societies is managed by Committees, each of which comprises eleven members—four elected by the members of the Society, four appointed by the County Council and a Chairman nominated by the Minister for Agriculture, together with the Secretary of the Society and the Director of the Provincial Board of Agriculture, both of whom are ex-officio members. The Provincial Agricultural Societies are responsible for the major part of the country's advisory work.

Personnel

12. The officers of a Provincial Board of Agriculture include a Director, Drainage Engineers, Agricultural Planning Officers with their Assistants and clerical staff. The total technical staff of the Board consists of 188 college graduates either in some branch of agriculture or in some other allied profession, e. g. architecture or engineering. In general the staff employed by the Provincial Agricultural Societies, which are really the main advisory bodies, comprises a secretary and a number of advisers in various branches of farming, in horticulture and in home economics. A number of assistants are also usually employed. There are in all 348 technically trained persons in the employment of the Societies and they fall into the following classes :

Secretaries	26
Agricultural Advisers (Mainly crop husbandry)	30
Livestock Advisers	26
Horticultural Advisers	31
Machinery Advisers	20
Home Economics Advisers	30
Fishing Advisers	37
Handicraft Advisers	10
Poultry Advisers	10
Youth Club Advisers	10
Assistants to Agricultural Advisers	91
Assistants to Horticultural Advisers	5
Chief Assistants for Cow Testing	22

Training of Advisory Personnel

13. Advisers in general agriculture and in the special branches of agriculture are trained at the Royal Agricultural College at Ultuna. The B. Sc. (Agr.) degree at this college may be obtained either in general agriculture or in one of four specialised subjects, viz. animal husbandry, agronomy, agricultural eco-

nomics or agricultural engineering. Matriculation, attendance at an agricultural school and experience in farming are necessary before commencing the course at the College. The course for a primary degree is of at least 3 years' duration. Horticultural advisers are trained at Alnarp Institute. Before commencing the course students must possess a good general education in Mathematics, Swedish and German or English as well as one year's experience in gardening. They must also have completed a course at a State or State-aided gardening school. The duration of the training course at the Alnarp Institute is two years. Women teachers for the Rural Home Economics courses are trained at either Rimforsa or Brogård. In both institutes a two years' course is given in cookery, needlework, weaving, household management, dairying, animal husbandry, gardening and such other subjects as are likely to be of value to rural housewives. Entrants to the course must have had a good general education and experience in housekeeping and farming.

14. Assistants to advisers (sometimes called Instructors) are trained by means of special short courses. In 1948 a special course of five months' duration was given for this purpose. Only men who have already attended an agricultural school and who have a high standard of natural ability and intelligence are selected for these courses.

In-service Training

15. In-service training does not appear to be catered for by a definite programme. Some work is being done in this connection by the provision of short courses at the Royal Agricultural College and sometimes at the other educational institutions. There is, however, much scope for improvement in this field of activity.

Advisory Methods

16. Lectures, short courses, film displays, practical demonstrations, educational exhibits and educational tours are the principal media employed for imparting information to farm people. Considerable importance is attached to short courses, which vary in length from 1 to 24 days. In 1947, the 1,850 courses arranged by the Societies were attended by 62,865 men and women. Farms are also visited on request for the purpose of giving advice. The carrying out of field trials is a further activity of advisers. The radio, agricultural journals and news-

papers are all found to be excellent media for the dissemination of agricultural information.

17. The advisers attached to the Provincial Agricultural Societies co-operate with the Agricultural Youth Organisations in their educational work. There are three such Youth movements, viz. the Jordbrukar Ungdomens Förbund (J.U.F.), the Svenska Landsbygdens Studieforbund (S.L.S.) and the Svenska Landsbygdens Ungdomsforbünd (S.L.U.). These organisations contribute to advisory work in various ways, as by arranging lectures, courses, educational exhibits, competitions and by promoting study circles. In the year 1948 the J.U.F. organised 221 practical courses with a total of 4,569 participants and 1,840 competitions with 17,340 participants. The S.L.S. and the S.L.U. also do a considerable amount of educational work but comparable details of their activities are not available.

18. The Home Economics Advisers work a good deal with women's organisations. Most Provincial Agricultural Societies have a committee composed mainly of women to assist in the organisation of the work of the Advisers in Home Economics.

Programmes and Programme Planning

19. The programmes followed by the Advisory Service are based largely on the requirements of national policy and in a rapidly changing world such programmes must be flexible. Provincial Agricultural Societies are allowed a great deal of freedom in the planning of their programmes, and this appears to the team to be of particular advantage in a country with such diverse soil, climatic and other factors influencing the pattern of its farming. The constitution of the various Societies is sufficient to ensure that the interests of practical farming will be taken into account in the fashioning of the programmes.

Agricultural Research

20. There are numerous Agricultural Research Institutes in Sweden, which include:

(1) The Royal Agricultural College and National Agricultural Research Centre at Ullana which has 17 different institutions dealing with education and research, as well as 9 experimental farms.
(2) The State Plant Protection Institute, Stockholm.

(3) The State Central Seed-testing Station, Stockholm.
(4) The State Control Institute for Agricultural Chemistry, Stockholm.
(5) The State Agricultural Research Station, Alnarp.
(6) The State Agricultural Machinery Testing Station, Ultuna.
(7) The Agricultural Engineering Institute, Ultuna.
(8) The State Dairy Research Station, Alnarp.
(9) The State Research Station for Farm Buildings, Lund.
(10) The Institute for Butter, Cheese, and Egg-testing, Malmo.
(11) The Swedish Plant Breeding Association, Svalof.
(12) Wiebullsholm Plant Breeding Institute, Landskrona.
(13) The Swedish Dairies Association (S.M.R.) Research Association, Ornsholdsvik.
(14) S.M.R. Central Laboratory, Malmo.
(15) Swedish Farmers' Meat Marketing Associations Research Department, Stockholm.
(16) The Fruit Breeding Institute, Balsgard.
(17) The Swedish Sugar Company's Research Department, Malmo.
(18) The Hilleshog Sugar Beet Plant Breeding Institute, Landskrona.
(19) A Home Economics Institute, which investigates problems dealing with household management, foods, cooking, hygiene, and various matters affecting home-making has been established in Stockholm in recent years.

The Visiting Team was given to understand that most of these institutions are well equipped and staffed. It is evident that they are carrying out a great deal of very valuable work.

21. The Royal Agricultural College and some of the institutes carry out a limited amount of advisory work. Members of the staff of some institutes do farm visiting (as in connection with the inspection of seed-crops, and with the investigation of plant diseases). Lectures from these institutions are sometimes provided for farmers' meetings. Farmers who desire information on agricultural matters may approach the College and other institutions directly and not necessarily through their local adviser. When a reply is issued to a farmer, the institution authorities do not feel obliged to furnish a copy to the local adviser, although in some cases this procedure is followed. The local advisers assist in the conducting of field experiments, the results of which are analysed, co-related and published by the

National Agricultural Centre or one of the other institutions. It appeared to the Visiting Team that closer contact between the advisers and the institutions would be to their common advantage.

Information and Public Relationship

22. The results of the work carried out at the various institutes appear in various scientific publications. In 1943, the Agricultural Information Office was established for the purpose of bringing quickly to the farmer in a readable form the results of scientific research. This office, which functions under the Royal Agricultural Board, has a council which comprises representatives of the daily press and agricultural press, as well as members representing research and practical farming and gardening. A summary of the results of the various research and experimental work carried out at the State's institutions is published in a popular form in a special supplement to the Journal of the Farmers' Association—a publication which reaches almost every farmer in Sweden. Research results also find a prominent place in other farming papers. A year book dealing with Swedish agricultural research is also published. The office keeps in close touch with the daily press and it is found that newspapers are extremely helpful in disseminating information on new techniques. The Agricultural Information Office has proved itself to be a valuable organisation.

Agricultural Schools

23. Courses of a less advanced character than those given at Ultuna, Alnarp, Rimforsa or Brogard are provided at various types of agricultural schools. Some particulars of these schools are given in the following table (p. 185).

At many of the above schools, short courses are arranged from time to time in subjects such as pig husbandry, cattle management, poultry-keeping, grassland management, milk-recording, gardening and book-keeping.

24. The various types of agricultural and rural domestic economy schools at present in existence are able to cater for the training of about 20 % of the future farmers and about 10 % of the future housewives of the country. To make provision for those who are unable to attend one or the other of these schools, the Federation of Swedish Farmers' Associations established a Correspondence School in 1943. Last year this school had on

its rolls 35,139 students, mainly farmers, their wives, sons and daughters. The Federation also successfuly runs a school designed to train rural leaders. In this school particular attention is given to the study of co-operation, public affairs and business methods. The agricultural schools are frequently visited by past pupils and by parties of farmers. On such occasions the teachers avail themselves of the opportunity to spread knowledge of new ideas and new methods. The teachers also occasionally co-operate in the arrangements for correspendence courses and some teachers do advisory work in summer. The extra-mural activities of the school staffs are, however, very limited in extent. The advisory officers attached to the Provincial Societies occasionally visit the schools together with parties of farmers. Generally, however, the contact between the advisers and the schools is not very close.

Schools	Nature of course	Attendances 1946-1947
48 Farm Schools (*Lantmannaskolor*)	Theoretical winter courses lasting 5 months and longer courses usually continuing for 9 months of a more practical nature are given to pupils 18 years or over.	2,014
8 Agricultural Schools (*Lantbunksskolor*)	One-year and two-year courses comprising practical and theoretical instruction for pupils 18 years and over.	306
3 Agricultural Technical Schools (*Jordbruksskolor*)	One and two-year courses in practical and theoretical agriculture given to pupils averaging 15 years.	136
4 Horticultural Schools (*Trädgardsskolor*)	The principal courses are of 12 months' duration in practical and theoretical instruction.	125
40 Rural Domestic Economy Schools (*Lanthushällsskolor*)	Courses, usually of 5 months, in housekeeping and farming subjects for pupils 18 years and over.	1,493
3 Dairy Schools	Practical and theoretical training for pupils who have already had a year's experience in dairying and who are at least 19 years old.	18

Finance

25. The total budgetary expenditure for Sweden in 1949-1950 is estimated at 4,014,624,800 Kroner. The estimate for agriculture (including forestry and fisheries) is 324,737,100 Kroner, i.e. approximately 7.9 % of the total. The estimated state expenditure on a number of agricultural items is as follows:

	Kr.
A. *Ministry of Agriculture:*	
Salaries	500,000
Other Expenditure [1]	52,500
B. *Royal Board of Agriculture:*	
Salaries	1,525,000
Other Expenditures [1]	235,000
C. *Provincial Board of Agriculture:*	
Salaries	6,440,000
Other Expenditure [1] (including 1,435,000 Kr. for travelling of advisers)	2,250,000
D. *Royal Agriculture College:*	
Salaries	2,506,000
Other Expenditure [1]	1,286,500
E. *Alnarp Institute:*	
Salaries	810,000
Other Expenditure [1]	561,200
F. *Schools of Agriculture, Horticulture and Domestic Science:*	
Expenditure [1] (including salaries)	5,629,300
G. *Provincial Agriculture Societies:*	
Salaries	3,168,000
Other Expenditure [1]	5,230,000

Salaries of Officers in Provincial Boards and Provincial Societies

26. Sweden is divided into five districts for the purpose of fixing official salaries which are graded according to the cost of living index in each district. The following figures give an indication of the salaries paid to officials engaged in advisory work; the team was given to understand that the salaries paid to advisory workers were somewhat lower than those paid to other public servants with comparable education and training.

[1] Other expenditure does not include subsidies paid to farmers.

	Service	Monthly salary	
		In district with lower cost of living	In district with higher cost of living
	Years	Kroner	Kroner
Assistant Adviser (College Graduates) .	1 1/2	587	666
— —	3 1/2	638	726
— —	5 1/2	752	853
— —	7 1/2	795	904
— —	afterwards	841	955
Advisers (all College Graduates)	3	948	1,062
— —	6	1,005	1,119
— —	9	1,062	1,176
— —	afterwards	1,120	1,234
Secretary of Provincial Agricultural Society	3	1,233	1,347
— —	6	1,288	1,396
— —	9	1,335	1,438
— —	afterwards	1,378	1,480
Director of Provincial Board	3	1,288	1,396
— —	6	1,335	1,438
— —	9	1,378	1,480
— —	afterwards	1,420	1,522

IV. Evaluation of Existing Advisory Services and Suggestions for Improvement of Services

27. Very great strides have been made in the introduction of new farming techniques and practices into Sweden in the past century. As a result of the technical progress that has been made there has been a steep rise in crop and animal production per hectare, while much of the drudgery has been removed from farm life. During this period, too, farmers have learned the value of coming together for the solution of their difficulties and they have at the present time an extraordinarly well developed co-operative system. For the progress that has been made, a great deal of credit must go to the Advisory Services operated by the Provincial Agricultural Societies. The suggestions set out in the succeeding paragraphs are made in the hope that they may be of value towards further strengthening a system that has in the past rendered sterling service to Swedish agriculture.

28. (1) Several agencies are engaged in advisory work in Sweden. Some of the Farmers' Organisations now provide Advisory Services. Care needs to be exercised so that these services will not overlap those provided from official sources. It is recommended that periodical conferences be held between the bodies operating the different services with the object of securing the necessary co-ordination and preventing duplication of work.

(2) At present most of the advisers employed by the Provincial Agricultural Societies deal with specialised branches of agriculture such as crop husbandry, animal husbandry and home economics. It is difficult to see how 30 advisers in agriculture or crop husbandry can give adequate service to 414,000 holdings. A system providing for a larger number of well trained advisers in general agriculture capable of dealing with all ordinary farming problems would, in the opinion of the visiting team, have many advantages. With such a modification in the present system each province might be sub-divided into a number of advisory districts of reasonable size. When confronted with problems of special difficulty, the general agricultural adviser might call on one of the specialised advisers.

(3) There are at present 91 Assistants to agricultural advisers in the employment of Provincial Societies of Agriculture. These men have not had the advantage of higher agricultural education. It has been indicated to the visiting team that these assistants are very carefully selected and that they render a satisfactory service, particularly to smallholders. While it is agreed that a limited number of assistants may be useful for the carrying out of routine duties of a technical nature, it is felt that an extension of this branch of the service would mean that the assistants would be really the advisers while the better trained advisers would have to devote themselves largely to duties of an inspectorial rather than of an advisory nature. Moreover, with a rising standard of general education amongst farming people it seems probable that more competent advisers will be needed in the future. In the circumstances, it is the opinion of the visiting team that as posts for assistants become vacant, the places of these officers should be filled by general advisers holding a degree in general agriculture.

(4) At the present time the Royal Agriculture College provides degree courses in each of four specialised branches as well as a course in general agriculture. If the suggestion in the

preceding paragraph for an increase in the number of advisers in general agriculture is considered desirable, some modifications may be necessary in the existing courses in general agriculture at the College. A great deal might be said in favour of having only one primary degree course at the College, namely, a course in general agriculture. In that event, those who wished to become specialists in some particular branch of agriculture such as animal husbandry would first of all take the primary degree in general agriculture and then proceed to a post-graduate course in the particular branch selected. It is recommended that a committee might be set up to examine the present system for the training of agricultural advisers with these aims in view.

(5) Well organised in-service training is essential for advisers. It is recommended that as part of such courses, instruction might be given in matters such as adult education methods, the planning of advisory programmes, radio techniques and the writing of popular articles.

(6) It is of paramount importance that advisory officers should be kept abreast of all important advances in scientific agriculture. For that reason, frequent visits of advisers to the research stations are of great value. Some countries have developed services of highly trained specialists to link the advisory officers in the field with the research institutes. It is recommended that the Royal Board of Agriculture confer with representatives of research institutions and advisory organisations to explore how best the two services can be brought into closer relationship in Sweden.

(7) In recent times there has been a considerable movement of population from rural districts to towns and cities. This drift of population, it is understood, is particularly pronounced in the case of women. An improvement in social and living conditions in country districts would undoubtedly help to make girls more eager for a career on the land. The visiting team attaches great importance to the work of the Home Economics Advisers in promoting the arts and sciences of home-making. At present, however, there are only 30 of these advisers working in the whole of Sweden (i. e. 1 adviser for 13,000 holdings approximately). It is recommended that this branch of the Advisory Service be considerably expanded.

(8) The visiting team regards the Agricultural Information Office of Sweden as a very valuable agency of advisory work. It appears, however, that the work of this office might be further

developed and it is recommended that consideration be given to the question of providing more adequate finance and staff for this office.

(9) The visiting team has been informed that advisers visit only farmers who seek their services. It is recommended that advisers should make a special effort to become acquainted with farmers who do not normally request advice, and thereby encourage such farmers to make full use of the service which is at their disposal.

XIII

SWITZERLAND

Duration of visit: 12th April to 20th April, 1950.

Members of Visiting Team:

Mr. M. PORTAL (France), *Chairman;*
Mr. J. M. A. PENDERS (Netherlands), *Secretary;*
Mr. Kurt PETRICH (Germany);
Mr. A. MASSACESI (Italy);
Mr. A. H. MAUNDER (United States), *E.C.A.*

1. The team visiting Switzerland was supplied with information on the organisation of Advisory Work by the officials of the Division of Agriculture in Berne. Visits were made to various research centres, agricultural schools, the Polytechnic Institute at Zürich and headquarters of farmers' associations, when information was obtained regarding Advisory activities. Farms were visited in three cantons where the result of Advisory Work was observed. There are 25 cantons in Switzerland, each with one or more schools sponsoring Advisory Work on an independent basis. Many farmers' associations also employ agriculturally trained personnel who do much Advisory Work with farmers. Adequate time was not available to make a comprehensive study of the work in hand by these various agencies. It was therefore difficult to arrive at a satisfactory judgment of the Advisory Work in the country as a whole.

I. Introduction

2. Switzerland comprises 25 federated cantons or independent states. It has an area of four million hectares of land, approximately one-fourth of which is unproductive mountains, glaciers and lakes, one-fourth forests, one-fourth permanent grassland and one-fourth arable land and meadows. The country lies

between 45° 49′ 09″ and 47° 48′ 36″ North latitude, and 5° 57′ 23″ and 10° 29′ 34″ longitude East of Greenwich. The altitude range, from 197 metres to 4,634 metres, is most important agriculturally. The climate is affected by altitude and latitude, the position of slopes in respect to the sun and by the location of mountains with respect to the movement of moisture-laden air from the West. Ordinary meteorological cycles are disturbed by early and late frosts, hail and abnormal periods of drought and heavy precipitation. Average annual precipitation varies from less than 60 cm. to more than 200 cm. in some alpine and sub-alpine regions. Temperatures are warmer than would be expected from the latitude, being tempered by the lakes which act as storage reservoirs for warmth at high elevations. The Föhn or "falling wind" warms some of the valleys and allows for the expansion of fruit growing, vine growing and land under maize. Of the 4,600,000 inhabitants approximately 19 % are engaged in agriculture. Seventy-four per cent of the population are German speaking, 21 % French, 4 % Italian and 1 % Romanche.

3. According to the 1939 census, there were 238,481 farm holdings in Switzerland, 81.9 % of which were under 10 hectares in size. Eighty per cent of the farms were owner-operated, 18 % operated by tenants and 2 % by managers and others. Over three quarters of the 952,508 workers in agriculture were the farm operators and their families. The number of smallholdings is gradually diminishing due to such farmers finding more attractive employment in industry. At present the total number of farm holdings is approximately 230,000.

4. The Secretariat of the Swiss Farmers' Union evaluated the 1949 agricultural production at 2,193.1 million francs, of which 74.2 % represented livestock and 25.8 % crops including vegetables, fruit and wine. Cereals, vegetables, fruit, potatoes and wine are the chief crops, while milk, beef and pork are the principal animal products. It is estimated that Swiss farms produce 56 % of the food requirements of the nation. Approximately 180,000 hectares were devoted to arable farming before the war. This area was increased to 365,000 hectares during the war but was reduced to 268,000 hectares in 1949. The present agricultural policy envisages 300,000 hectares devoted to arable farming.

5. The total national income of Switzerland was estimated at 8,300 million Swiss francs per annum before the war. In 1946

it was estimated te be 14,300 million. Of these totals, agriculture accounted for 600 million Swiss francs or 7 % before the war, and 1,200 million Swiss francs or 8 % in 1946. Switzerland is largely an industrial country. In 1949, total imports were valued at 4,800 million Swiss francs, and of this sum 1,425 million Swiss francs was for food and feeding stuffs. 1,591 million Swiss francs for raw materials and 1,804 million Swiss francs for manufactured goods. In the same year, when the total exports were valued at 3,268 million Swiss francs, only 75 million represented food and feeding stuffs and 120 million raw materials. 3,073 million Swiss francs worth of manufactured goods were exported.

6. Agricultural affairs at the national level are administered by the Division of Agriculture, one of the Divisions in the Department of Public Economy. A high degree of decentralisation exists in the Swiss Federal Republic and most of the administrative authority is retained by the cantons. A relatively small staff of civil servants is retained at the federal level.

7. In Switzerland there are more than 17,000 agricultural associations with a total membership of approximately 974,000 persons. Each farm family is thus a member of an average of four associations. The tasks of the agricultural associations include the development of professional education; the advancement of agricultural technique; the improvement of agricultural purchasing and marketing; livestock breeding; co-operative grazing; seed growing; fruit, wine and crop insurance; and the provision of credit for the advancement of cultural life. All of the agricultural associations, with very few exceptions, are united in the Swiss farmers' Union, which has a broad programme for the improvement of the economic, political, social and cultural interests of the rural population.

8. Education is compulsory and free up to the age of 15 years. The primary schooling may be followed by two to four years of secondary or continuation training, which, in the case of agriculture, may require attendance at a certain number of courses per week. A system of 37 cantonal schools offers training in agriculture and domestic economy over varying periods up to two years. Social schools are provided for dairying, cheese-making, viticulture, horticulture and weaving. The courses provided in the latter schools are well attended. A total of 4,823 students completed their training in agricultural schools in 1948 and 14,929 pupils were enrolled for continuation courses.

Agricultural education at the university level is conducted by the Polytechnic Institute at Zürich which awards the diploma of Engineer Agronome. Almost all teachers of the agricultural schools hold this degree.

Reallocation of Land

9. Considerable progress has been made in consolidation of holdings since 1934. Approximately 65,000 hectares were involved in projects completed in 1948, while over 7,000 properties were reallocated during the past year. During the fourteen-year period 1934-1948, 260,723 parcels of land were consolidated into 69,938 parcels. Costs of roads, drainage, surveys and other expenses incidental to reallocation amounted to approximately 1,000 francs per hectare in 1948. Subsidies from confederations, cantons and communes, provided about 75 % of this cost. Both farmers and officials spoke highly in praise of these consolidations and the resulting increased production and efficiency. Preparatory education for farmers in connection with such projects is conducted by agricultural teachers as a part of their advisory work. Before consolidation can be proceeded with, a majority of the land-owners concerned must agree and the project must be approved by the Division of Agriculture in order to qualify for the subsidies.

Aims and Scope of Present Advisory Service

10. The Advisory Services of Switzerland are not organised into a single system under government direction since much of the Advisory Work is carried on as part of the programmes of agricultural schools, farmers' associations and research institutes. All branches of technical agriculture, including domestic economy, are catered for, though services are not in all cases fully developed or universal in cover. The main emphasis of Advisory work is directed towards economic and efficient production, but the cultural and social problems of rural areas receive attention. Work in rural home-making is largely conducted by the farm women's associations which have contributed a great deal to the cultural life of the people and to the expansion of professional education. Youth activities are largely the responsibility of the schools and their past-pupil associations. The Swiss Agricultural Association gives valuable practical training to farm-youth. A parallel programme is in existence for girls.

II. Present Advisory System

11. The Federal Government of Switzerland does not organise education according to any uniform pattern. Agricultural education, which includes Advisory Work, is the responsibility of the government of each canton, with the exception of that given at the Federal Institute of Technology at Zürich, where a course of four years' duration is provided to give agricultural teachers preparatory training. In the Federal Government Administration the Department of Public Economy deals with agricultural matters though its agricultural division. This Division of Agriculture has several sections, including one for land reclamation, one for animal hubandry and one for plant production, research work and agricultural education. The agricultural education system, to which Advisory work is joined, has a very wide influence on the technical education of Swiss farmers. Primary education is free and compulsory up to the age of 15 years. Many of the future farmers attend the secondary or district school. The training schools, called "Fortbildungsschulen", recently set up by the majority of cantons, provide part-time compulsory courses which include a transition course in agricultural education in rural areas. Technical education for farmers is provided at the intermediate agricultural schools of which there are four each with a farm attached, giving two annual courses in theoretical and practical agriculture. In addition, there are 38 winter schools for agriculture which provide theoretical training during the winter. The fees, which are low, cover food and books only, the teaching and upkeep of the schools being met by the Federal (35 %)and Cantons' (65 %) governments. About 3.000 pupils between the ages of 19-25 years attended these winter schools. Practical training is given and experiments are carried out at the winter school farms of 20-60 hectares, at which courses are often held during summer. Other schools include four dairy schools which awarded about 200 diplomas in 1947; three horticultural schools which trained about 150 students in 1947; two schools for vine-growing and cider-making with 60-70 pupils in the same year; a school for bee-keeping; a school for poultry husbandry and fifteen winter schools which organise home domestic courses for farm girls during the summer time. In 1947 nearly 700 farm girls attended these latter schools. These winter schools for agriculture and domestic economy are very popular and the majority have waiting lists of intending

pupils. Past-pupil associations are organised for the ex-pupils and these associations do much good work by arranging refresher courses, excursions and demonstrations. In 1949 nearly 2,000 pupils attended post-primary courses in the Canton Schools. Special post-scholar courses are also given for cheese-makers, dairy-workers and cow-men. Apprenticeship is arranged on well-conducted farms for young men, and the Swiss Agricultural Association organises apprentice examinations in theoretical and practical agriculture. During apprenticeship training, four to six hours' instruction is provided each week and pupils work under supervision for one or two years on selected, well-managed farms. Having taken the apprenticeship examination, the young farmer can attend special courses which are held in the schools for two or three days each season in order to take the "companionship" examination at a minimum age of 22 years. He can then proceed to take out the "Master's Certificate" at a minimum age of 27. The "Master's" examination is so difficult that only farmers very well grounded in theoretical and practical agriculture can hope to be successful. The "Master's Certificate" and title is regarded by the farmers as a distinction of particular importance, and in 1946 the certificate was obtained by only 51 candidates. Apprenticeship and other certificates are open to women.

12. While agricultural education is mainly the responsiblity of the cantons, the agricultural research centres are the concern of the Federal Government. Agricultural research is carried out at the Agricultural College in Zürich, and at seven research centres, many of which carry out both experimental and control work. The Swiss Farmers' Union in which, with a few unimportant exceptions, the agricultural associations in Switzerland are united, plays an important rôle in advising the Federal Government on agricultural policy. It has a scientific central office called the "Swiss Farmers' Secretariat". In addition, much work is done on the survey and record books obtained from the 7,000 farmer correspondents entrusted with research into the profitability of agriculture. Other sections of the Swiss Farmers' Union are concerned with social and economic questions. The Agricultural Building Office, which is a co-operative organisation, has offices at Brugg, Winterthur, Berne, Bottighofen and Lausanne. There is also a consultative engineering office attached to the Swiss Institute for Agricultural Machines and Simplification of Agricultural Work which has its headquarters at Brugg. This latter Institute has agricultural

machinery stations attached to three of the winter schools. The "Association of Engineer Agronomes and Teachers" in Switzerland has a membership of 95 % of those holding the agricultural diploma or teaching in the agricultural schools. The Association takes responsibility for the publication of books for the agricultural schools, the profits being used to provide refresher professional courses for its members, at which common problems are discussed. Through these informal discussions a certain degree of co-ordination in the educational system and organisation is made possible. A characteristic of the Advisory Service in Switzerland is that neither the Federal nor the Cantonal Governments employ full-time agricultural advisers. Advisory work is wholly linked up with teaching, and teachers act simultaneouly as farm advisers. Little use is made of the individual farm visit. Teachers are chiefly engaged in class-work, control work and advisory methods that reach groups. Ex-pupils are encouraged to organise demonstration plots, and group farm visits are very popular. Some agricultural associations employ a few full-time advisers.

Financing

13. During the last financial year the Swiss Federal Government budget amounted to approximately 1,450 million Swiss francs of which approximately 60 million Swiss francs or 4 % was allocated to agriculture. At the same time agricultural production represented in value about 8 % of the total national income. The Federal Government expenditure on schools and education was approximately 1.5 million Swiss francs in 1948, or 2.5 % of the total agricultural budget. In the same year the Cantons spent nearly 4 million Swiss francs for schools and courses. The Agricultural College at Zürich and the research centres in Switzerland are wholly financed by the Federal Government. Subsidies of 35 % for educational expenses, 25 % for excursion expenses of pupils and 15 % for school supplies are awarded by the Federal Government to the annual and winter schools. The Federal Government also awards subsidies of 27 % for educational expenses and 25 % for equipment to the schools for home economics. A grant of 35 % of the cost of the advisory activities of the agricultural teachers is made by the Federal Government.

Personnel

14. The staff in charge of Advisory work is almost entirely derived from among the teachers of the agricultural winter

schools, though some occasional assistance is given by other agencies. The total staff of the agricultural schools of the Cantons is approximately 250, the majority of which (with the exception of those teaching horticulture and fruit growing) are university graduates. The staff of the seven Federal Experimental Stations at Lausanne, Berne, Oerliken and Wadenswil also help in Advisory work, but their activity in that connection varies from station to station and is difficult to evaluate. The team was informed that apart from the permanent staff employed, some 400 graduates in agriculture made a contribution to the work. These included the agricultural engineers employed as heads of sections in the Federal Administration and Agricultural Chambers and technicians from the numerous Swiss agricultural associations. Since the amount of time devoted by teachers to Advisory Work varied from district to district, and the number of agricultural schools varied from canton to canton it was impossible for the visiting team to estimate in any precise way the adequacy of the service offered. It appeared, however, that in some districts, the staffs employed for agriculture and home economics were inadequate to meet the needs of the people.

Preparatory Training and Qualifications

15. Teachers in agricultural schools generally qualify at the Federal Polytechnical Institute of Zürich. All students proceeding to study at the Agriculture Department of the Institute must have reached a suitable standard of general education and have had six months' practical farm training. The diploma course is of three to four years' duration, and subsequent to obtaining the diploma "Ingénieur Agronome", the young graduate must undergo one year's practical training. No specialised training in Advisory methods is given to future teachers during their studies at the Institute.

Salaries of Agricultural Teachers

16. While the Federal Government indicates its desire that the salaries and payments of teachers in the agricultural schools are to some extent standardised, in practice they vary greatly from district to district. The annual salary of an agricultural school teacher at the district of Vaud, who is married and has two children, is from 10,800 to 15,000 Swiss francs. In the main, the salaries paid to Advisory workers compare favourably with those received by officers of a comparable grade. The salary

of a teacher at the Federal Polytechnic Institute reaches 20,000 Swiss francs a year and more. This is higher than the salaries received by the professors at the Universities in the cantons. On retirement at 65 years of age, canton officials with 30 to 40 years' service receive a pension of 60 % of their highest annual salary as teachers of agriculture. These are, however, only average figures, the salaries and pensions being liable to vary considerably from one canton to the other.

In-service Training

17. No systematic organised In-Service Training is provided for agricultural teachers who act as advisers though training in some subjects is given. Many teachers, particularly in the French part of Switzerland, act as directors of the experimental stations attached to the schools. At these experimental stations trials are conducted to ascertain the local application of the results otbained at the Federal research stations. Where there is no experimental station attached to the school, the agricultural teachers utilise the school farm for experimental work. The results of the main research stations are transmitted regularly to the agricultural teachers who are also invited to attend meetings with the research officers for the discussion of scientific results. The professional organisation of the "Ingénieurs Agronomes" is very active in providing for the improvement of the progessional knowledge of the agricultural teachers and progressive farmers. Frequent interchange of technical and economic information takes place between the various farmers' organisations, specialised associations, research institutes and agricultural schools. Few countries possess as many agricultural associations with educational aims, or have as great a circulation of technical and scientific publications relating to agricultural questions. Interest is not only given to the results of Swiss research, but attention is directed also to the scientific improvements obtained in other countries. Switzerland is very receptive to foreign influences. Visits to other countries are frequently organised by different associations, and in particular by the professional association of the "Ingénieurs Agronomes". Official study trips for the agricultural teachers, when arranged, are financed partly by the Federal Government and partly by the Government of the canton.

Advisory Methods

18. Although most known methods are utilised in Advisory work in Switzerland, there is a wide variation in the methods used between districts, and the time available to the team did not allow a determination of the results achieved by the various methods. The individual farm visit is one of the methods largely used in some of the districts to the North of the country where teachers of agricultural winter schools act as advisers during the summer. Districts are divided up among the teachers for the field work and advice is offered to farmers on all problems of farm management. The number of advisers is not, however, sufficient to allow all farmers to be visited regularly. In the French speaking part, the advice given to farmers by school teachers is generally limited to the teachers' special subjects. One of the professors teaching vine-growing at Lausanne follows throughout the year the processes of vine-growing, wine-making and wine-storing in the most important vineyards of the district. A single teacher however is far from being able to give adequate advice to all vine-growers in the district where the school is located. Therefore, due to the difficulty of reaching large numbers, the teacher-advisers must direct their efforts to collective advisory methods. One method widely used is that close contact with ex-students is maintained through ex-pupils' associations, through which short-term courses, group visits to experimental stations and excursions are arranged. Such courses, conferences and visits are usually open to all farmers. Courses and "information days" are organised by the research stations for dairy farmers, tree-growers, co-operative cellar managers, and for Managers of Unions for the purchase and sale of ferlisers, animal feeding-stuffs and insecticides. Weekly talks of a technical nature are given on the radio to farmers. The agricultural press plays a very important part in the dissemination of technical information. Papers and reviews of a general or specialised character are very numerous and the high standard of farmer education is evident from the nature of their contents. Research centres, stations attached to schools and specialised associations publish bulletins and pamphlets which are made available at cost to local agricultural papers for use, in order that a wider public may be reached. As far as technical publications are concerned, the lead is taken by the Association of Agricultural Engineers and of Agricultural Teachers. This latter association publishes most

of the journals and books dealing with technical agriculture. The Swiss Farmers' Union and the National Federation of Agricultural Associations, have done much to foster book-keeping and have published a great number of works relating to farm economics, farm statistics and price studies. At the present time, approximately 300 farmers in Switzerland keep farm-accounts and advice is provided free on request from the Swiss Farmers' Union on estate management. "Pilot farms", as arranged in many countries between the adviser and the farmer did not appear to be widely used in the districts visited.

Programmes and Programme Planning

19. Farmer participation in the formation of policy is very advanced in Switzerland since all important decisions on general policy are submitted to the vote of the people. In addition all associations of importance contribute advice on economic policy, and the Swiss Farmers' Union has on occasion been consulted by the Federal Government. At the federal level there is no distinct section dealing with Advisory work and no precise programme is advanced for that work in the country as a whole. At the canton level a great deal of freedom is allowed to the agricultural teachers in forming their own programmes, though broad lines are indicated by means of directives. On the other hand the agricultural authorities in some Cantons are kept in touch with the progress of the work through the fortnightly reports received from the headmasters of the agricultural schools in which the bi-monthly reports of the teachers have been consolidated.

Relationship to Research and Teaching

20. Advisory work is carried out in conjunction with the agricultural schools, the teachers of which, at the same time engage in experimental and control work. Short courses are organised for the agricultural teachers several times each year at the seven Federal Research Stations, for the purpose of discussing research results. The teachers carry out much experimental work on the school or neighbouring farms in co-operation with those Research Stations. Statistical material relating to farm economics is supplied to teachers by the "Farmers' Secretariat" attached to the Swiss Farmers' Union and the Swiss Institute of Agricultural Machinery supplies much information on the mechanisation of farm holdings. Co-operation between the teachers in the

different regions on farm management work appears to be subject to improvement.

III. Evaluation of Existing Advisory Services and Suggestions for Improvement of Services

21. Scientific agriculture has made much progress in Switzerland. Much of this progress is due to excellent educational programmes carried out in well-equiped agricultural schools, to the high quality of research and to the support given to these agencies by farmers and farm organisations. The following recommendations are offered with the purpose of strengthening a system which is already rendering valuable service.

(1) Advisory work in the cantons is conducted by many schools and associations as a sideline to their primary functions such as teaching, seed improvement, and cattle breeding. Teachers in agricultural schools have very heavy teaching schedules and frequently spend more than 25 hours a week in teaching during the winter courses. Effective Advisory work requires frequent contacts with farmers on their farms at all seasons of the year. It is therefore recommended that special Advisory Services be established, staffed with properly qualified personnel whose undivided attention can be given to Advisory work. Many teachers and research workers contacted expressed a need for such a service in order that they might be relieved of such time-consuming work and that better service could be given to farm people. Research workers, in particular, expressed the wish to devote their full time to research and to maintain such farm contact only as was necessary to be familiar with farmers' problems.

(2) Considerable variation exists in the range and quality of the Advisory Service available to farmers in different cantons. This is due partly to difference in local financial support and partly to lack of central co-ordination in programme development. It is, therefore, recommended that without detracting in any way from the local autonomy of the cantons a department of Advisory Services be established in the Division of Agriculture of the Federal Government. Such a department, staffed with personnel who would devote full time to the development of Advisory work, could give needed leadership and assistance to the cantons in improving their Advisory Services.

(3) It is recommended that a study be made with the

purpose of reaching some arrangement whereby equal financial support might be available in all cantons for Advisory work. Should it be found impossible to reach such an arrangement, consideration might be given to a method whereby Federal subsidies might be awarded on a scale based on the needs of the cantons, in order to improve the Advisory Services in the poorer cantons.

(4) It is recommended that special sections be established in the Federal Ministry to handle regulatory and control work such as plant protection, control of feeding stuffs and standardisation of machines. Such control work needs to be developed to a greater extent and should be the responsibility of special agencies created for that purpose. It should be handled by separate agencies to that responsible for Advisory work.

(5) It is recommended that a complete system of advisory aids be established and that teachers and advisers be trained in their use. A service of the type envisaged might be most economically and efficiently organised by the Federal Ministry.

(6) It is recommended that a system of demonstration farms be established where farmers could see the results of the use of improved practices as applied to the whole farm. Such farms may not necessarily be owned by the canton or state but in agreement with the owner-operator special assistance could be given in planning and management, in return for the use of the farm as a demonstration open to inspection by other farmers.

(7) It is recommended that an official Advisory Service on farm machinery be made available to all cantons. It is important that only well trained and qualified personnel be employed for this purpose. Special attention needs to be given to the economy of mechanisation of small farms and to standardisation of tractors and equipment adapted to local conditions. An over-mechanisation of small farms seems apparent in some localities at the present time.

(8) The excellent work in farm book-keeping and record analysis now being conducted by the Swiss Farmers' Union is to be highly commended. It is recommended that competent farm management personnel be employed to assist farmers in the application of knowledge gained through this fine work. Such workers would be of invaluable assistance in increasing efficiency, productivity and income of the individual farmer.

(9) The 37 agricultural schools are to be commended for the fine training they give to young men and women. It is recommended that their numbers be increased to satisfy the great

demand for this type of training, and that more specialised schools such as those for cheese-making and viticulture be established.

(10) In many of the agricultural schools the teaching responsibilities of the staff are unduly arduous. In addition to their teaching duties the teachers must devote much time to Advisory and Control work. The present schedule does not allow for proper preparation of materials and teaching aids. It is recommended that teaching staffs be increased as soon as possible so that not more than 20 to 25 hours of teaching per week is required of each teacher.

(11) It is recommended that both teachers and advisers be given additional training in the art and science of teaching. At present only 12 hours of pedagogy and psychology are offered at the Agricultural College in Zürich, and even these courses are not obligatory. A more thorough training of teachers in teaching methods would make their work much more effective.

(12) It is recommended that the post-elementary school courses now available in some cantons be extended to all cantons and that in rural areas, such courses be given a greater orientation towards agriculture. This work should be of an elementary nature in preparation for higher education.

(13) The Visiting Team concurs with the view expressed by several educational authorities that the education provided in winter schools for farm boys should be largely theoretical in nature. The courses provided at those schools are designed for farm boys who have considerable practical experience and who would profit most if the short time available at the schools was devoted to theoretical work.

(14) The progress made in consolidation of fragmented holdings is to be commended and should be expanded as soon as practicable. It is recommended that careful study be made of the costs involved in such consolidation work in order to keep the expense as low as consistent with effective results. The Visiting Team is of the opinion that the initiative in starting such projects should remain with the local communities but that agricultural advisers would be of great assistance in the preliminary planning and education necessary for securing the co-operation of all individuals and groups involved. It is also recommended that the farm building service of the Swiss Farmers' Union be expanded and utilised towards reducing the costs of new construction and alteration of buildings in connection with farm-consolidation.

XIV

UNITED KINGDOM

Duration of visit: 23rd January to 6th February, 1950.

Members of Visiting Team:

Mr. J. M. A. PENDERS (Netherlands), *Chairman*;
Mr. Th. Vendelbo ANDERSEN (Denmark), *Secretary*;
Mr. K. PETRICH (Germany);
Mr. S. ORLANDI (Italy);
Mr. A. H. MAUNDER (United States), *E.C.A.*

1. The team which visited the United Kingdom examined the Advisory Services to farmers in England, Wales and Scotland. These comprise two distinct services, the Service for England and Wales operating under the direction of the Ministry of Agriculture at London while the Service for Scotland is directed by the Scottish Department of Agriculture. In England and Wales Conferences were held with the Service officials of the Ministry of Agriculture, the Directors of the National Agricultural Advisory Service, the representatives of the Veterinary Service and the Agricultural Land Service. Conferences were also held with the Voluntary bodies concerned with Advisory Work and Rural Welfare. Fields trips provided an opportunity to confer with county and local advisory officers, with representatives of farm institutes, agricultural colleges, and research stations. Opportunity was had to discuss Advisory Work with farmers in the field and with the representatives of the National Farmers' Union. Similar opportunities were provided to the Team during the course of its visit to Scotland. At the conclusion of the visit, a meeting was arranged with the Ministry officials in London when factual data were checked and preliminary findings discussed. Owing to the short time available, it was not possible for the team to visit Northern Ireland.

GENERAL INTRODUCTION

2. The population of the United Kingdom in 1948 was approximately 50 million people, of which roughly 2.1 per cent lived in rural districts. In 1949 the number of people engaged in agriculture was estimated at 5 to 6 per cent of the total population. Although the major part of the population lives and works in urban areas, agriculture remains a very important activity in the economic life of the country. 48 million out of the 60 million acres of land in the United Kingdom are used for agricultural purposes. Over a million and a quarter people are employed in agricultural work. Agricultural land use in the United Kingdom in 1949, as compared with pre-war years, was as follows:

	1936-1938 Million acres	1949 Million acres	% change
Crops and fallow	8.9	12.7	+ 42
Temporary grassland	4.2	5.7	+ 37
Total arable land	13.1	18.4	+ 40
Permanent grassland	18.7	12.7	— 33
Total area under crops and grass (ex. rough grazings)	31.8	31.1	— 2

During the same years changes have also occurred in cropping practices. Thus the acreage of cereals has increased from 5.3 million acres in 1936-38 to 8.1 million acres in 1949, i.e. by 51 %. The percentage production increase for the various crops is as follows: Wheat 29 %; Barley 169 %; Oats 51 %; Potatoes 86 %; Sugar beets 38 %; Vegetables 42 %; and Fruit 64 %.

Changes in livestock numbers over the same period have been as follows:

Cows and Heifers in Milk or in Calf	+ 16 %
Other cattle	+ 20 %
Sheep	— 24 %
Pigs	— 30 %
Poultry	+ 23 %

The above figures show progress made to date towards achieving the high level of production planned for 1952, which envisages an increase in net value of the annual agricultural output of 50 % above pre-war yield, that is about 20 % above the 1946-47 level. It is estimated that in the year ending May 1950 agricultural production will have reached 35 % above pre-war.

ENGLAND AND WALES

I. Introduction

3. There is great variation in soil type, rainfall, topography and farm size throughout England and Wales. The northern and western parts are more hilly and comprise a greater proportion of grazing land. Arable farming is carried on in the fertile plains of East Anglia, grazing and dairying are more important on the midland pastures while sheep farming is practised in the hilly districts of Wales and in the North and South-West of England. Holdings of 5-25 acres comprise 35 %; those from 25-100 acres, 38 %; 100-300 acres, 22 %; and farms of 300 acres and over, comprise 5 % of the total number of farms in the country. Of the total number of farms, therefore, 27 % represent holdings of 100 acres or more and they account for 70 % of the total agricultural area of the country. In approximately 45 % of the holdings dairying is the main enterprise. At present approximately one-third of all farmers are owner-occupiers and two-thirds tenants.

Administrative Organisation

4. Administration of the programmes and schemes of the Ministry of Agriculture including the Advisory Service is centred in a series of committees and boards. The County Agricultural Executive Committee administers all programmes in the County and is appointed by the Minister. It includes members nominated by the land owners, tenants and farm labourers. The county Agricultural Advisory Officer is chief administrative officer for the Committee. Sub-Committees deal with Advisory Work and land management. All regulatory authority regarding agriculture at the county level is placed in the C.A.E.C. [1] Certain decisions affecting the work of County Committees such as consent to notice, to quit, or the dispossession of an inefficient farmer after a period of supervision are subject to an appeal to a Provincial Agricultural Land Tribunal, an independent body whose decision is final. Counties are divided into districts. Each district comprises approximately 1,000 farms, each with an Advisory Committee for the planning of Advisory Work. The National Farmers' Union is an important force in the agriculture of England and Wales. Its membership comprises over

[1] County Agricultural Executive Committee.

200,000 farmers or about 95 % of the farmers operating farms of 7 acres or more. The government negotiates the support levels of prices for farm-products in advance of each season with the National Farmers' Union.

5. Under the Agriculture Act of 1947, the Minister of Agriculture may, with the approval of Parliament, enforce a minimum standard of efficiency. Persuasion and price incentive are the mainsprings of policy rather than compulsion, but as a corollary to guaranteed prices and security of tenure, disciplinary powers exist to deal with the inefficient farmer and landlord who are unable or unwilling to respond to advice. In isolated cases individuals are directed as to the acreage they must maintain under tillage. The Ministry of Food has powers relating to the disposal of certain products produced on the farm. Certain animal feeding stuffs as well as human foods are strictly rationed. Farmers are, however, guaranteed prices for the main products they have to sell. In return they are expected to produce efficiently.

Agricultural Institutions and Education

6. The education of children in England and Wales is compulsory from 5 to 15 years. At the age of 12, pupils are divided into two groups, and those showing special scholastic aptitude are encouraged to prepare for University matriculation while others are given special vocational training during the remaining three years. Junior technical agricultural education, including that provided by the farm institutes, is the responsibility of local education authorities. The Ministry of Agriculture allows grants for that purpose. A course of one year in general agriculture, dairying and poultry husbandry, is provided at about 31 farm institutes, each of which can accommodate from 30 to 120 students. Specialised courses in horticulture, dairying and poultry-keeping, varying in length from a few weeks to a year are also provided by most of these institutes. There are four agricultural colleges in England and Wales. Courses usually extend over two years and diplomas or certificates are awarded. Subjects include general agriculture, horticulture, dairying and poultry-keeping. Eight Universities provide courses in agriculture leading to degrees, some of them offering specialised degree courses in dairying and horticulture. Practical farm experience although regarded as desirable by most University departments is only definitely required by some. An important Agency of voluntary informal education in agriculture is provided by the Young

Farmers Clubs which include approximately 61,000 members between the ages of 10 and 25. These are self-governing but they receive some support from local education authorities and the Minister of Agriculture and Education. Activities include competitions, rural crafts, lectures and discussions.

7. Agricultural research in the United Kingdom is to a great extent financed and co-ordinated by the State. It is financed mainly through the three Agricultural Departments. Co-ordination is secured through the scientific supervision—extending to both programmes of work and scientific staffing—exercised over the work in Great Britain by the Agricultural Research Council; and the Council also finances some research. There is little agricultural research carried out directly by the State in Great Britain; the research is mainly entrusted to independent bodies constituted in various ways (e.g. a University Board, Friendly Society, Trust or Company limited by guarantee) and these bodies are grant-aided by the Agricultural Departments for both capital and maintenance purposes. The Agricultural Research Council finances research in various ways: it awards special research grants to University Departments and other bodies for *ad hoc* research; it maintains small units for research in specific subjects within universities or elsewhere; together with larger organisations for animal breeding and animal physiology. The Agricultural research institutes, grant-aided by the Agricultural Departments, have been planned on the subject basis; there are institutes for research in soils, plant breeding, plant physiology, plant pathology, horticulture, vegetables, glasshouse crops, hops grassland, animal nutrition, animal breeding, dairying, animal pathology and engineering. The co-ordination secured by the Agricultural Research Council covers not only the agricultural research institutes and workers among themselves but extends to co-ordination of agriculture with medical and industrial research since the Council is one of three councils for medical industrial and agricultural research all coming under the Lord President of the Council. In England and Wales there is an organisation working as part of the National Agricultural Advisory Service, viz. Experimental Husbandry Farms and Experimental Horticultural Stations whose aim is to test out further under various soil and climatic conditions, the results obtained at the Agricultural Research Institutes and to incorporate them into practical husbandry and horticulture. A total of some 25 such farms and stations is aimed at and about half that number are already at work or the sites for the work have been secured and are being

developed. The farms and stations come under the supervision of the Agricultural Improvement Council exercised through two separate *ad hoc* Committees for husbandry farms and horticulture stations respectively. The farms and stations are (unlike the research institutes) directly administered by the Ministry of Agriculture. Provision is made for the closest linkage between the administration of the two different kinds of institutes for research and experiments respectively. Both the Agricultural Research Council and the Department of Agriculture of Great Britain have schemes for the award of post-graduate scholarships to secure recruits for all the above work as well as for the scientific work carried out by specialist officers in the National Agricultural Advisory Service. Generally, the Council limits its awards to biological sciences, while the Agricultural Departments cover husbandry, agricultural engineering, agricultural economics and statistics. Investigations in Agricultural Economics, carried out at university and other centres, are grant-aided by the Departments of Agriculture but do not come under the supervision of the Agricultural Research Council. There is a commonwealth Organisation with headquarters in London—the Commonwealth Agricultural Bureau—financed and governed jointly by the countries in the Commonwealth whose objects is to keep research, experimental, advisory and field officers in the Commonwealth abreast of the progress and results of agricultural investigational work throughout the world. It functions through a system of institutes and bureaux, each taking a specific subject, e.g. entomology, soils, dairying, etc. Agricultural accountancy is carried out separately from the National Advisory Service, by the Universities and Colleges. Accountancy is mainly directed towards estimating average production costs and to some extent towards individual farm management.

8. At the national level the work of the National Agricultural Advisory Service and that of the research stations and the Universities, is co-ordinated by the Agricultural Improvement Council.

Aims and Scope of Advisory Service

9. The aim of the National Agricultural Advisory Service is largely governed by national policy. National policy has as its objective the increase by 50 % of agricultural output by 1951 over the average obtained from 1937 to 1939. One half of the increased output is to be obtained by raising the general level

of efficiency by higher yields of food, grass and foddercrops and by increasing the output per head of livestock and poultry. Improved methods of breeding, the control of animal and crop diseases, the increased use of improved varieties of crops, the increased use of fertilisers, and improved grass management and utilisation will be emphasised in order to reach the target.

II. Present Advisory Service

10. The present National Agricultural Advisory Service (referred to as N.A.A.S.) was inaugurated in October 1946. It has thus been in operation for three years only, a factor which renders it difficult to assess the results achieved. Previous to the new organisation the Advisory Work was carried out by the County Councils, the Universities, the Research Institutes, and the Ministry of Agriculture. The N.A.A.S., as now organised, is the responsibility of the Ministry of Agriculture only. It serves all farmers and horticulturists in England and Wales. Its headquarters are in London where a small staff is maintained, including the Director-General and his senior advisers in Science, husbandry and Horticulture. For administrative purposes the country is divided into eight N.A.A.S. Provinces. Each province is in charge of a provincial director who is responsible for the Advisory Service for the province. The Provincial centre has a large staff of specialist officers divided into two groups of science and husbandry specialists. The first group consists of soil and nutrition chemists; bacteriologists; entomologists and plant pathologists, and the second of livestock husbandry; milk production; poultry; horticulture; crops; grassland; and farm machinery officers. In addition there is an advisory aids officer. Most of these specialists have assistants and those forming the science group have their laboratories. There is a library attached to the provincial headquarters. The specialists at the provincial level deal with the more difficult questions referred to them by the specialists at the county level and the advisers in the field. They also carry on experimental work and assist general advisers to keep abreast of new developments in their special subjects. There are 61 counties under the direction of the eight provincial offices. The head of the County Service is the County Agricultural Officer. He is responsible for the county Advisory Service, the County Agricultural Land Service and for the executive work of the county. An Assistant County Officer directs each of these sections of county work with the aid

of a Committee. The Advisory staff at the county level consists of a number of specialists dependent upon the local agricultural conditions. These specialists support and assist the District Advisory Officers in their field work. These district officers are responsible for the field advisory work in their respective districts which comprise 800 to 1,000 farms. They deal with all general agricultural problems.

11. The Agricultural Land Service, set up in 1947, is concerned with improvement of agricultural buildings, with water supplies and drainage and the administrative regulations concerning land use. In the main this Service deals with landowners.

FINANCING

12. It is estimated that the N.A.A.S. organisation will ultimately cost as much as £2 million annnually and will in due course employ some 1,750 officers. The Service is financed wholly by the Government, through the Ministry of Agriculture. Office accomodation and printing services are, however, granted by other Ministries. When fully developed and staffed, the annual expenditure for all Advisory Work will represent only one-third of one per cent of the value of the annual agricultural output, or less than one penny in each pound sterling.

PERSONNEL

13. The total strength of the National Agricultural Advisory Service for England and Wales is at present approximately 1,400 officers. This is about 500 officers under the authorised establishment figures. It is hoped to fill the remaining vacancies when suitably qualified personnel are available. There are three broad groups of officers employed in the N.A.A.S., namely the science specialists, the husbandry specialists and the general advisers. The science specialists deal with such subjects as Soil Chemistry and Entomology. They are essentially honours degree graduates who have done some post-graduate work in their particular subjects. The husbandry specialists are drawn from the ranks of graduates in general agriculture and horticulture. The majority of them have spent a year or more in post-graduate work, in such subjects as grassland improvement, fruit improvement, animal husbandry or farm machinery. The general advisers are graduates in agriculture or horticulture, some of whom have not proceeded on a specialised post-graduate course. All advisory officers when selected are required to undergo a proba-

tionary period of two years or more before they are established and participate in the superannuation scheme of the service. The University qualified staff of the Advisory Service are in the main derived from the eight Universities which have departments of agriculture. The course for an agricultural degree is of three years' duration. No uniform standard of practical training is required from students proceeding to degrees in agriculture or horticulture. Some universities do, however, require one or two years practical training on a farm. There is no practical test given to degree candidates in any of the Universities. The Royal Agricultural Society of England, in conjunction with the Highland Agricultural Society of Scotland and either the British Dairy Farmers Association or National Poultry Council award a National Diploma in Poultry Keeping (N.D.P.) or in Dairying (N.D.D.). Candidates for these diplomas usually study for at least 2 1/2 years at Universities or Agricultural Colleges before proceeding to the diploma examination. Similar diplomas are awarded in Agriculture (N.D.A.) and in Horticulture (N.D.H.). The students for all the national diplomas are given a practical test at their examination.

14. Candidates for positions in the National Advisory Service are interviewed by a Civil Service Selection Board at the Ministry of Agriculture in London. Apart from basic academic qualifications, much stress is laid on practical experience and personality in selection. Until recently there was no training in advisory methods, but a course has now been instituted of two weeks' duration which includes instruction on the organisation of the Advisory Service, the use of advisory aids, instruction in public speaking and advice on farmer approach. In-service training is provided by the specialists at the eight provincial centres who endeavour to keep advisers abreast of research developments. Frequent conferences are held at both the provincial and national level. At the provincial level frequent meetings are held under the chairmanship of the Provincial Director and attended by the senior specialist and County Advisory Officers to review progress, discuss local problems and plan future activities. The Provincial Specialists and the Provincial Directors regularly hold meetings at the Ministry of Agriculture to consider current questions and interests. An annual national conference attended by the County agricultural officers and the Headquarters' staff provides an opportunity for a comprehensive review of the years' work and for discussion on current and future programmes.

Advisory Methods

15. The most effective way of imparting information to farmers is the personal advisory visit, but, since the District Advisory Officer is responsible for some 1,000 holdings, it is not possible to visit all farmers. The Service therefore makes use of several other methods. Articles are written for local weekly newspapers, for the national farming and horticultural press, and for the Journal of the Ministry. In addition, short advisory leaflets and the more complete bulletin are supplied. Lectures are provided, sometimes in collaboration with local education authorities and Young Farmers' Clubs. Farmers' discussion groups are also organised. Cinema films or film strips are widely used. The regional offices of the British Broadcasting Corporation allocate some time for agricultural and horticultural broadcasts. The "Farm walk" where a party walks over a selected farm with the farmer and the Advisory Officer often provides an interesting discussion. Visits are organised to the local experimental husbandry farm and experimental horticulture station where they have been established. Experiments are conducted and demonstration plots, dealing with crop varieties, manuring, diseases and pest control, are carried out on private farms. Finally, there is the educational exhibit at the Agricultural Show, where models, charts, living plants and animals are made use of to demonstrate new methods or techniques relating to farming practice. Each county is provided with film projectors (sound and silent) and film strip projectors. Epidiascopes and public address apparatus are available. Free literature is supplied to Advisory Officers for distribution as required, and each province is provided with mobile bookstalls and attendants, to visit demonstrations, shows and meetings, with the full range of the Ministry's publication. At the headquarters in London there is a separate department for advisory aids which works in close co-operation with the advisers.

Programme and Programme Planning

16. The current pattern of development is set by the Agricultural Expansion Programme launched by the Government with the agreement of all sections of the industry in 1947 to cover the period up to 1952. Progress in the achievement of this programme is reviewed regularly by the Ministry of Agriculture, preparatory to the Annual Price Reviews, and discussions take place with the organisations of the farmers and of the workers

from time to time, as necessary, either at headquarters or in the counties. The Government programmes for allocation of investment resources to different purposes have also been designed to provide for sufficient investment in agriculture to match the Expansion Programme.

Research Relationship

17. The Agricultural Improvement Council (composed of equal numbers of scientists and progressive farmers) is responsible for the flow of research results to the farmers and for the flow of farming problems to the research stations. The A.I.C. has set up a system of committees to take care of certain subjects such as crop husbandry and horticulture. The Experimental Husbandry Committee will be in charge of the series of experimental farms which are now being set up in various agricultural regions. Similar arrangements cover the Experimental Horticultural Stations. The results of research will be tested on these farms under varying conditions and their application to practical farming in the locality determined. A quarterly publication for the advisers provides abstracts relating to research carried out in the country and abroad.

III. Evaluation and Suggestions for Further Development

18. Under the N.A.A.S., advisory service is available to all farmers on an equal basis. The quality or quantity of the service is not affected by the financial support given to the work by the county or community. Since all employees are Civil Servants there is no longer any tendency for wealthier counties to attract better advisers with higher salaries, thus lowering the quality of the personnel and service in counties with smaller budgets or less local support. The organisational plan provides for sufficient personnel to meet the needs of all farmers. Since Advisory Officers have been placed in the national Civil Service, salaries have been standardised and appear to be generally adequate in comparaison with other civil employees of similar training. A superannuation plan is in effect for all Civil Servants. An excellent system of advisory aids has been developed which provides each adviser with films, slides, pictures, exhibit materials, bulletins, leaflets and other teaching aids. An excellent system has been devised for keeping advisers informed on all current developments in research. It is felt by the Visiting Study Team that the National Agricultural Advisory Service is

quite well adapted to the needs of England and Wales under present conditions. With the great need that new exists for maximum food production, such a closely knit organisation for the purpose of increasing the quantity and efficiency of production seems essential.

19. The following recommendations suggest possible ways in which an already well organised and staffed service may be made more effective in meeting all of the needs of farm people and in increasing the efficiency of agricultural production.

(1) The County Agricultural Advisory Officer, as administrative officer for the county agricultural executive committee, has many regulatory and statutory functions. These duties include supervision of subsidy programmes, rationing of food stuffs, and the supervision of Class "C" farmers. Some of these responsibilities are delegated to special officers appointed for this purpose and others are handled by specialist Advisory Officers and District Advisory Officers. The rather high proportion of time devoted to such work, may result in the neglect of regular advisory or educational work due to lack of sufficient time for both. Some farmers and spokesmen for the National Farmers' Union expressed the opinion that some of the less efficient farmers in need of most help do not call on the Adviser for assistance lest they be placed under supervision in their farming activities. On the other hand many Advisers reported that such statutory and regulatory work places them in contact with many farmers never before reached by the Service and that licensing of bulls or rationing of feed gave an opportunity to discuss breeding and feeding problems with the farmer. In view of these conflicting opinions it is recommended that when more experience is had of the present system a study be made of the duties and responsibilities of advisory officers with a view to the assignment to others of those duties of an administrative nature which interfere with the proper performance of advisory and educational functions.

(2) As in many other countries the farmers of England and Wales are not making full and complete use of the available Advisory Service. The situation has improved, however, since the reorganisation of the service in 1946. Participation in or use of the services should be strengthened by placing more responsibility on local communities for programme development and implementation. The present system of district advisory committees is a step in the right direction but there is an apparent lack of community responsibility for the service.

(3) The responsibility for farm economics appears to have been delegated to the Universities, the statistics gathered being used by the Ministry of Agriculture in determining food and agriculture policy. Farm management work is, however, handled largely by the general agricultural advisers who have no specialist assistance other than that informally obtained from the Universities. This phase of advisory work is very important to the individual farmer and to the nation in its programme to increase food production. It is recommended that more emphasis be placed on farm economics in the programme of the Advisory Service and that adequate specialist personnel by provided for that purpose.

(4) At present home economics for adults and youth education on the farm are conducted by volunteer groups with some assistance from the county education authorities and the N.A.A.S. Further development of these phases of advisory work is farming and rural home making can have an important effect on agricultural production and rural living. It is therefore recommended that the N.A.A.S. shall concern itself to a greater degree with these activities and encourage their greater development.

(5) The farm institutes do not appear to have received universal approval of farmers as a means of training youth in the theory and practice of farming. The number of these institutes has increased rapidly under war and post-war conditions. New plans for increased compulsory education now call for further development of those institutes with closer co-ordination with Advisory Work. The Visiting Team agrees that greater co-ordination is desirable, and recommends the placing of these institutes under the direction of the Ministry of Agriculture.

(6) The Visiting Team recommends an increase in the number of local experiment stations and demonstration farms. Such centres should be developed in close co-ordination with the N.A.A.S.

(7) The impression was obtained that under the National Agriculture Advisory Service, local advisory workers are somewhat handicapped by regulations. It is recommended that more autonomy and flexibility in programme development and execution should be given to encourage a greater display of initiative on the part of advisory officers and to improve farmer participation.

(8) The procurement of properly trained and experienced personnel for the Advisory Service has presented some difficulties, since some graduates from the Universities lack adequate farm

experience. The present policy of employing only these applicants who have practical farm experience and who show evidence of ability to work closely with farmers and gain their confidence should be continued. It is recommended that the Universities be approached to strengthen their requirements in practical agriculture for students who aspire to a degree in agriculture.

(9) There is a definite shortage in the N.A.A.S. of men with technical training in agricultural economics and agricultural engineering. While this shortage is recognised and steps are being taken to obtain qualified personnel, it is recommended that this deficiency be remedied at the earliest possible opportunity.

(10) Closer co-operation between the National Farmers' Union and the N.A.A.S. at district and county levels seems desirable. The National Farmers' Union nominates a panel from which the Minister appoints members to the County Agricultural Executive Committee, but further co-operation would be helpful. A discussion between representatives of the N.A.A.S. and the N.F.U. (National Farmers' Union) of mutual interests at regular intervals would do much to create closer co-operation, and it is recommended that steps be taken to explore the possibilities in this regard.

(11) An In-Service Training programme for agricultural advisers is in effect. It is recommended that this programme be continued and strengthened.

SCOTLAND

I. Introduction

1. Agriculture in Scotland employs approximately 90,000 regular workers besides nearly 40,000 farmers, including smallholders. There are 19 million acres in the country, only about 4 1/2 million of which are arable. Eleven million acres are rough hill grazings, and a good part of the remainder is mountain land of little or no agricultural value. The acreage under crops in Scotland increased by 20 % between 1939 and 1949, i.e. from 1.48 million acres to 1.78 million acres. Thus in 1949 approximately 41 % of the total arable area was under crops. The main cereal crop is oats, to which just over 930,000 acres were sown in 1949. Root crops for stock feeding cover the next largest acreage and potatoes, especially seed potatoes, and barley are important crops. For climatic reasons the area under wheat

is small. There are three main types of agriculture practised and they are located in three contrasting regions. In the East along the North-East coast as far as Moray Firth are the fertile lowlands of the coastal counties where most of the arable cropping is carried on with the rearing and fattening of livestock, as a complementary activity. In the South-West are the dairy counties, where the climate is softened by the Gulf Stream. In the North and North-West are the Highlands and Islands where the land is mountain moorland grazed by sheep and cattle in the heights and tilled in small crofts — hereditary family smallholdings—in the lower valleys.

II. Present Advisory System

2. Scotland has had an Advisory Service for sixty years and their present system is considerably influenced by tradition. There are three agricultural colleges affiliated in different degrees with the neighbouring University located at Edinburgh, Glasgow and Aberdeen and the Advisory Service is organised in close connection with these colleges. In contrast with the English system the Advisory Service in Scotland is not under the control of the Department of Agriculture for Scotland. The executive controls of the Department are performed by the Agricultural Executives Committees and not by the Advisory Service as in England and Wales. The Department of Agriculture has administrative control of the three University colleges. The Advisory Service is organised through and by the Colleges. Each college has a headquarters staff of Advisory specialists and the field advisory staff are under the control of the provincial director. The provincial officer for the region of Edinburgh, for instance, has a staff of 81 of which number 40 are agriculturists, 10 horticulturists, 10 dairy and poultry advisers, 12 advisers in beekeeping, research, machines and implements and 9 office clerks. Each adviser has a district or county to attend to and some of the more specialised advisers serve larger areas. Agricultural Advisory Committees are at present being appointed in local regions, the object of which is to secure the more effective functioning of the advisory service and to give farmers an opportunity to take part in the planning of the Advisory programme. In Scotland, in contrast to England and Wales, the survey work on economics in connection with price fixing is carried out by the Advisory service.

Financing

3. The Agricultural Advisory Service in Scottland is financed wholly by the Government, and the estimated annual cost of the service is approximately £ 370,000. Until recent years local contributions provided a share of the financial support necessary to maintain the three agricultural colleges, including the Advisory Services. Recognising the importance of Agricultural education and advisory work, the State in the course of time has gradually provided more and more of the financial assistance to those institutions. At the present time they are totally supported from State grants with the exception of some small amounts obtained from students' fees and the sale of farm produce.

Personnel

4. At the provincial headquarters attached to each of the three colleges there is a staff of 8-10 advisory specialists. The total number of field staff employed in the Scottish Advisory Service is approximately 190 officers, excluding specialist advisory staff. These officers must serve 40,000 farmers. Entrants to the Advisory Service are required to hold university degrees in agriculture but since at the moment there is a shortage of suitably qualified personnel, it is not always possible to insist on this qualification. For poultry keeping and dairy husbandry, specialist Advisers are required to be of Honours standard. The specialists at the college level are generally pure scientists with some knowledge of practical agriculture. Conferences are held annually at different research institutes to keep members of the advisory staff in contact with the research work being done. These conferences enable the research workers to discuss the work they are doing and to obtain from the Advisory Officers information on the problems being encountered in the field.

Advisory Methods

5. The advisory methods used in Scotland are very similar to those used in England and Wales. The personal visit to the farmer is the most popular and effective method in practice, although lectures are used to a wide extent in establishing contact with farm people and farm youth. Local research work and demonstration farms are used by the adviser to demonstrate research results, while demonstrations, on a fairly large scale are carried out on farms throughout the college areas. Leaflets

describing agricultural practices are distributed to interested farmers, and talks and interviews on agricultural subjects are given on the radio. There is also a quarterly journal and a fortnightly brochure issued by the Department of Agriculture contributing to the same end.

Programme and Research Relationship

6. The Scottish Agricultural Advisory Council is concerned with questions relating to agricultural policy. This Council has a sub-committee for technical questions, which is made up of the principals of the University Colleges in agriculture, the Directors of the research stations, and some farmers. This sub-committee functions with the 35 Agricultural Advisory Committees representing all rural interests set up in 1948 in bringing to the notice of the farmers the results of scientific research and technical development. Farmers' problems are transmitted on the other hand, through the agricultural advisers to the University colleges and research stations.

III. Evaluation and Suggestions for Further Improvement

7. Since a rather short time was available to the visiting team for the purpose of assessing the Advisory Service in Scotland only one of the three divisions of the Advisory Organisation was contacted. Little opportunity was afforded for conferences with local advisers. It was thus rather difficult to make a precise judgment on the efficiency of the Organisation, but it appeared that the service is peculiarly adapted to the situation in Scotland. With three agricultural colleges located respectively in the East, West and North of Scotland, and with conditions distinctly different in each area, it seems logical that the Advisory Service should evolve around these institutions. The responsibility for development and operation of the Service is shared by the Department of Agriculture, the three colleges and the local advisory committees. This appears to be a very sensible arrangement. Confidence is expressed in this type of organisation by the staff of the Department of Agriculture, officers of the Advisory Service and by farmers as represented by the Farmers' Union. Statutory work is entirely separated from Advisory work in contrast to the system in England and Wales. This arrangement is entirely approved by the Scottish farmers. Increased emphasis

is being placed on advisory work since the war, although not enough farmers were interviewed to determine how adequately they are served.

8. The service appears to be doing rather effective work towards more efficient production methods. The following recommendations should be of assistance in forwarding the objectives of the Service.

(1) Although complete uniformity in administration between the three advisory centres may not be entirely necessary or desirable, it is recommended that greater co-ordination between colleges in the conduct of advisory work should be established. This view is supported by the opinions of many well-informed persons contacted by the team during the course of its visit.

(2) Regional specialists are inclined to work somewhat independently of the county adviser in contacting farmers. This practice has a tendency to undermine the confidence of farmers in their local advisory offices. It is recommended that all specialists work with and through their local adviser.

(3) Home economics and youth work are not included in the advisory programme although advisory officers give much assistance to youth groups through lectures and assisting discussion groups and arranging competitions. This work is very desirable and it is recommended that it be expanded to become a regular part of advisory activities.

(4) Little training in the methods used in advisory work is at present given to the advisers or to the new entrants in the service. It is recommended that this subject be included in both the induction and in-service training accorded to the advisers.

(5) There were no specialists in livestock feeding and livestock management in the advisory division visited. Even if livestock production is less important in this area than in Western and Nothern Scotland, these subjects are of vital importance to the farmers. It is recommended that consideration be given to the appointment of such specialist officers.

(6) Since agriculture is becoming more and more competitive it is recommended that the economies of production and farm management and the economic use of machines be given more attention in the advisory programme.

(7) While farmers have made much greater use of the Advisory Service in Scotland since the last war, there are still many farmers in need of the service who do not avail of its assistance. While the new advisory committee plan for local

administration should do much to increase farmers' interest in advisory work, it is recommended that a study be made with the object of determining the reasons for lack of farmers' interest and appropriate action taken to remedy that situation.

(8) The advisory aid programme is not as strong as it should be. Greater use should be made of the radio and local newspapers in reaching farm people and consideration should be given in general to a greater use of mass-media.

(9) The Advisory Service in Scotland is unique in the facilities available through close association with the agricultural faculties of the universities for in-service training. At present the provision for such training is weak and it is recommended that it be strengthened and developed.

ANNEX

MEMBERS OF THE WORKING PARTY OF EXPERTS

Chairman: Mr. C. STAF, Chairman of Sub-Committee on Agricultural Technology.

COUNTRY EXPERTS

Belgium

Mr. A. GOBBE, Director, Ministry of Agriculture.

Denmark

Mr. Th. ANDERSEN, Agricultural Adviser, Horsens.

France

Mr. M. PORTAL, Agricultural Inspector-General.

Germany

Mr. K. PETRICH, Production Department, Ministry of Food and Agriculture.

Greece

Mr. G. SVORONOS, Director, Ministry of Co-ordination.

Ireland

Mr. D. HOCTOR, Agricultural Inspector, Department of Agriculture.

Italy

Mr. S. ORLANDI, Counsellor, Ministry of Agriculture; Mr. A. MASSACESI, Provincial Inspector of Agriculture.

Netherlands

Mr. J. M. A. PENDERS, Provincial Agricultural Advisor Officer.

Norway

Mr. A. LIDTVEIT, Director in Ministry of Agriculture.

Portugal

Mr. F. de VILHENA, Inspector, Ministry of Agriculture.

Sweden

Mr. G. R. YTTERBORN, Deputy Director General, Royal Board of Agriculture.

United Kingdom

Mr. W. S. GIBSON, Deputy Provincial Director, N.A.A.S.

EXPERTS PROVIDED BY E.C.A.

E.C.A.

Messrs. M. L. WILSON, Director, Extension Service, U.S. Department of Agriculture;
P. E. MILLER, Director, Extension Service, Minnesota, U.S.A.;
A. H. MAUNDER, Supervisor, Extension Programme, Nebraska. U.S.A.;
A. L. DEERING, Dean of Agriculture, Maine, U.S.A.

EXPERTS PROVIDED TO ASSIST SECRETARIAT IN CO-ORDINATION OF WORK

F.A.O.

Mr. B. L. HUMMEL, Extension Specialist, Virginia, U.S.A.

E.C.A.

Mr. L. J. HAYDEN, Agricultural Extension Specialist, O.S.R., Paris.

SECRETARIAT OF O.E.E.C.

Mr. B. L. ROWAN, Secretary, Food and Agriculture Committee.

O.E.E.C. PUBLICATIONS

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Also published in French.

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PRINTED IN BELGIUM